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# Worldwide Report

TELECOMMUNICATIONS POLICY,  
RESEARCH AND DEVELOPMENT

No. 278

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# INDUSTRY SURVEY OPTIMISTIC ABOUT MICROCOMPUTER MARKET

Melbourne THE AGE in English 10 May 83 p 26

[Article by Uan Maddocks]

[Text]

**An industry survey indicates that the market for small microcomputers in Australia is set to "explode".**

According to the industry research group, IDC in Sydney, more than 250,000 "home" computers will be sold in Australia next year.

The trend seems to have started already. Estimates show that about 150,000 units will be sold this year alone — compared with 50,000 last year.

IDC says increased power and sophistication have helped consumer acceptance of the smaller micros. And in the survey, it defined "small", as systems which sold for less than \$1000.

It says strong growth is also predicted in the more expensive, \$1000-plus, single-user, business systems market. According to an IDC consultant, Millard Lowe, between 55,000 and 60,000 of the more powerful computers will be sold in Australia this year — more than double last year's figure.

And he predicts that there will be a 50 per cent increase in demand next year.

One of the biggest micro distributors in the market, Commodore, sold more than 20,000 of its Vic-20s last year alone, despite

the fact that the little computer was only released mid-year.

The company's sales manager, Mr Roger Davis, says Commodore expects to sell about 100,000 of the machines next year. "A target of 100,000 Vic-20s may seem wishful thinking to some, but we've not only set that target . . . we know we're going to make it".

Although growth in its \$1000-plus business computer market is solid — \$500 systems last year, 13,000 estimated for this year and 25,000-plus next year — Commodore is concentrating on the home market.

According to Mr Davis, the low-cost micro market is booming. "It's also where the money is," he says.

He dismisses as "too conservative" and "misleading" the prediction that 150,000 low-cost micros will be sold in Australia this year. "I think we'll sell that many ourselves," he says.

He boldly predicts that Commodore will sell more than 200,000 low-cost (less than \$1000) micros next year.

One of the other contenders in the home and education market, Atari, is equally confident. Although the company's general manager, Mr Noel Thurlow, would not reveal any figures, he says Atari is expecting a "dramatic increase" in turnover next year.

Tandy's merchandising manager, Mr Mal Williams, was also reluctant to disclose unit sales but did say that the growth of low-cost systems had jumped 150 per cent in the past 12 months.

He also supported the industry's general optimism that there would be even faster growth next year, predicting that Tandy's sales of the smaller systems would rise by 200 per cent.

But he was less sure that there would be much increase in the sales of \$1000-plus systems.

He explained that in the past 12 months Tandy's sales had grown by an average of 50 per cent and said he expected similar growth during the next 12 months.

However, the low-cost computer market could get a further boost later this year, if the British Broadcasting Corporation sells its very successful "computer literacy" TV series to the ABC. When the series went to air in the UK there was a surge in demand for micros.

Despite public enthusiasm for micros, the market seems reluctant to pay more than \$600 or \$700 for a system. And as Commodore says, that's where the money is. So there should be some healthy growth at the bottom end of the market.

# NEW MULTINODE MODEM COMBINES VARIETY OF FEATURES

Canberra THE AUSTRALIAN in English 10 May 83 p 27

[Text]

CASE Communication Systems has launched a microprocessor-based modem incorporating in one compact unit a multi-node modem with error correction and speed conversion plus integral auto-dial and auto-answer facilities.

Called the CASE 440/12, the device is claimed to offer dramatic cost savings and performance benefits for companies using low and medium speed asynchronous data communications links.

The multi-node modem will operate at switch selectable data rates from 75 to 1200 bits per second, including a split speed 1200/75 mode for View-data applications.

Mr Barry Foster, CASE's managing director, said the speed translation capability of the 440/12 enabled communication between devices with incompatible transmission rates.

The error correction system used in the 440/12 ensured the integrity of data transmitted.

"Using an automatic retransmission request procedure, the 440/12 corrects errors due to corruption and loss of data on the communication link," he said.

The error correction function was completely transparent and could therefore be used without requiring hardware or software modification to attached terminal or computer equipment.

## Interface

The integral auto-dialler was controlled over the unit's single RS232 interface to automatically dial any number up to 16 digits on the telephone network.

The mode and speed of the 440/12 could be changed through the RS232 interface to provide for computer con-

trolled compatibility with a range of different modems at remote locations.

The auto-answer facility conformed to the standard CCITT V25 procedures with both 108/1 and 108/2 systems supported.

Mr Foster said the 440/12 was in fact a complete communication system in a unit only slightly larger than a conventional modem.

"It carries out, in one device, the functions that would normally require three or four separate pieces of equipment. At \$1795 the 440/12 is a fraction of the cost of the alternative equipment configurations.

"It costs even less than a standalone auto-dialler and with the 440/12 you get a modem with error correction, speed translation and auto answer capability. It is fully approved by Telecom for use on Datel leased and dial-up lines."

CSO: 5500/7575

## AUSTRALIA

### BRIEFS

MIDAS CONNECTION--Prime Computer of Australia has successfully implemented a connection to the Overseas Telecommunications Commission's Midas international packet switching system. In conjunction with the OTC, Prime has installed a 4800 bits per second full duplex synchronous leased line between its North Sydney head office and OTC in Broadway. This connects the Prime network of computer systems installed at its head office to the Midas Data Gateway at OTC. Overseas users may now call directly into the Prime Australia local network via the Midas Data Gateway facility, or any other network utility supported by OTC. The parent company, Prime Computer, Inc, based in Boston, Massachusetts, may now be connected to its Australian subsidiary at will and transfer data as required, reducing costs previously incurred through telex and facsimile services. A Prime spokesman said before this implementation, a major limitation had existed in the inability of Australian databases or hosts to be accessed from overseas data networks. "The consequence of this limitation has been a one-way flow of information into Australia and the inability of Australian companies to offer reciprocal services." [Text] [Canberra THE AUSTRALIAN in English 10 May 83 p 23]

CSO: 5500/7575

#### LOCAL COMPANY WINS SECOND INTELSAT CONTRACT

Jakarta HARIAN UMUM AB in Indonesian 26 Apr 83 p 3

[Text] Jakarta, AB--In the 2 years since it became BUMN [expansion unknown], Indosat, Ltd has been able to increase its income by 150 percent. The company has won an international contract with Intelsat for technical work connected with satellite observation in the Pacific and Indian Oceans.

The manager of Indosat, Ltd, J L Parapak, yesterday told the press that in the 2 years since ownership of Indosat shifted to the Indonesian Government from a private American company, it has been able dramatically to increase its income.

In 1982, Indosat had revenues of 70,182,000,000 rupiah, an increase of 150 percent from the previous year. At the same time, public service performed by international telecommunications in 1981 rose 59 percent from 1980. There was a 42 percent increase from 1981 to 1982.

Indosat provides international telecommunications services directly to 52 countries, the majority of which have important commercial or tourist connections with Indonesia.

In the 2 years since BUMN, Indosat has twice won an international contract offered by Intelsat (International Satellite), a world council which takes care of satellite communications with all the countries in the world through the supervision of technical operations on its own satellites.

The first contract with which Indosat was entrusted was in 1982. The contract was to set up Earth Station Jatiluhur as a reference station in the Time Division Multiple Access project. The contract was to last 5 years with a value of \$2 million.

The second contract, the one just won by Indosat, is to observe the activities of an Indosat satellite that is orbiting over the Pacific and Indian Oceans.

For this contract, Indosat must prepare the tracking, telemetry, control and monitoring services (TTC&M), centered in Jatiluhur, to control Intelsat's satellite which will orbit above the Pacific and Indian Oceans during launch and during its entire period aloft.

The contract is for 5 years. The first stage is valued at \$11.3 million which is to be shared by Japan, Hong Kong, Australia and Indonesia.

Winning this contract assures Indonesia of an internationally recognized position in satellite matters and also brings foreign exchange into our country, said Parapak.

There is still confusion between the duties of Indosat, Ltd, which carries out international communication for the general public, and Perumtel, which does the same domestically.

Since its job is to prepare international telecommunications services, Indosat is not concerned with the satellite Palapa. Palapa is a domestic communications channel and the responsibility of Perumtel.

In addition to going through the central Indosat operator, every conversation that goes outside the country must first go through channels managed by Perumtel.

From the initiating telephone, the conversation goes to a local switchboard, then to the international switchboard. This equipment all belongs to Perumtel. From the international switchboard, the conversation goes to the satellite and then to its destination. This is Indosat's work. From the receiving station outside Indonesia to the receiving instrument, the transmission is the responsibility of the foreign telecommunications company.

Parapak said that the cost is also divided accordingly. Take an Indonesian-Singapore conversation, for example. The rate of 1,380 rupiah per pulse for the conversation is divided equally between Indonesia and Singapore, at 690 rupiahs each. Perumtel gets 60 rupiahs of the Indonesian portion, and Indosat gets 630 rupiahs. Perumtel makes the claim to Indosat. All rates for international conversations are calculated in gold francs.

12201

CSO: 5500/8505



## PHONE LINKS PLANNED FOR PACIFIC

Auckland THE NEW ZEALAND HERALD in English 20 May 83 p 14

[Text] **Pacific Forum leaders are being asked to approve spending up to \$150 million over the next decade to bring the region's remote islands into the world telephone network.**

The South Pacific Telecommunications Development Programme, based on a study last year by a New Zealander and two Australians, will involve both satellite and land-based microwave links.

It has just been approved by a ministerial meeting in Tonga, where New Zealand was represented by two Post Office officials, Mr A. Turpie and Mr A. Ryan.

The programme now goes for final approval to the South Pacific Forum summit in Canberra in August.

### NZ Funds

It is expected that Australia, New Zealand, and countries such as Japan which can supply the necessary telecommunications equipment, will offer to fund the scheme.

At present, most large towns in the Pacific already have good overseas and local automatic telephone exchanges.

But many rural areas and outlying islands still rely on inferior high-frequency radio services.

An initial American study last year proposed to remedy this with an entirely satellite-based service, with between 3000 and 6000 land stations, each costing \$28,500, to be built in virtually all significant villages.

This option was rejected by the Australia-New Zealand study team.

"We did not want any rusting monuments out in the outlying islands, so we tried to keep it simple," said the New Zealand member of the team, an Auckland Post Office engineer, Mr Warwick Thorley.

"We felt a better cost and maintenance solution was to give most of the islands a very small telephone exchange, and bring them back via satellite to the main islands."

The study team recommended a totally land-based microwave system for mountainous countries such as Western Samoa, where radio paths could link the peaks of islands even 40 or 50 kilometres apart.

### Satellites

But low-lying coral atolls as little as 20 to 30 kilometres apart would need satellite stations to talk to each other.

Several planned American and Australian satellites could be able to serve the islands, including the Intelsat programme that links New Zealand's Warkworth satellite station to the outside world.

Pacific countries could be expected to pay for leasing satellite capacity from their telephone charges.

But the \$150 million capital cost including the microwave and satellite earth stations would come mostly from foreign aid.

Mr Thorley said this plan had probably been amended by the ministers before it went forward to the Canberra summit.

In its final form, the plan is expected to cover Papua-New Guinea, the Solomon Islands, Vanuatu, Kiribati, Tuvalu, Nauru, Niue, Fiji, Tonga, the Cook Islands, Western Samoa, and the newly independent, formerly American, Federated States of Micronesia.



PEOPLE'S REPUBLIC OF CHINA

PRC MINISTRY VIEWS POSTAL TELECOMMUNICATIONS SERVICE

Beijing JINGJI GUANLI [ECONOMIC MANAGEMENT] in Chinese No 2, 1983

[Article by: Policy Research Office of the Ministry of Post and Telecommunications]

[Text] In a recent report presented at the 12th Party Congress, comrade Hu Yaobang pointed out that, in order to ensure continued development of the nation's economy, it is essential to devote significant efforts to post and telecommunications construction. Efforts to improve postal and telecommunications service as outlined in the 12th Party Congress will play an important role in achieving the goal of economic development in this country.

The Important Role of Post and Telecommunications in Economic Development

Postal and telecommunications service is part of the production force of a society; it is an essential component of a modern society and the "nervous system" of national economy. It also plays an independent and productive role in economic development. By providing high-quality and high-efficiency communication service, it links the four segments of a society: production, distribution, exchange, and consumption. Communication is essential for the distribution of products, coordination of labor, transfer of materials, and exchange of scientific information among various departments of the national economy, various regions, industrial and mining organizations, and among various units within a company; it is also essential for trade activities among nations. Post and telecommunications are playing an increasingly more important role in economic development and in people's lives, as illustrated below.

1) With the aid of modern communications equipment, the departments of national economy can obtain timely information from all over the world, make rapid and accurate assessment of market conditions and economic signals, and accelerate the circulation of funds and the flow of merchandise, thereby achieving maximum economic benefits. For example, one day in June of 1980, the Ningxia branch office of the Chinese Mechanical Equipment Import-Export Company had an urgent need to contact Hong Kong to resolve a problem of changing the model number of one of the exported products. They called Hong Kong by long-distance telephone and found out that the person in charge had left

for Beijing. Thus, a difficult problem in foreign exchange credit worth several million Hong Kong dollars was resolved within a few minutes of telephone conversation, and potential financial losses to this country were avoided. Post and telecommunications channels are also essential for the exchange of funds between banks. If the Ministry of Communications can speed up information transmission so that the turnaround time of money exchange is reduced by 0.1 to 1 percent, then hundreds of millions to billions of yuan each year can be saved.

2) By using modern communications techniques, the departments of national economy can scientifically organize various production activities, save labor time, accelerate production processes, and improve the efficiency of operation and assignment of cars; as a result, vacancy was reduced and the vehicle utilization rate was increased by 30 to 100 percent. As another example, the Ministry of Railway used radio communications to control train movement and achieved good results in terms of accelerating the turnovers of locomotives and cars, reducing station service time and increasing the efficiency of transportation. If only one additional train per day could travel on the 240-km segment between Beijing and Shijiazhuang, there would be 700,000 tons of additional merchandise being transported every year; and the Ministry of Railways's revenue would increase by 2 million yuan.

3) Because of the current global energy crisis, it is of strategic significance to achieve the goal of energy conservation by using communications techniques.

With the rapid development in economic conditions, post and telecommunications are having a more pronounced effect on people's material and cultural standards of living. Statistics show that, in 1983, more than 2,100 different newspapers and magazines were handled by the Ministry of Posts and Telecommunications, and the total number of issues was as high as 180 million. By using microwave circuits, the Ministry of Posts and Telecommunications can broadcast television programs to more than 20 provinces, cities, and autonomous regions. It is estimated that approximately 10 percent of the average income of the world's population depends on communication. In fact, the degree of modernization of post and telecommunications technology and the degree of popularity of communications service have become one of the important indices for measuring the economic development and the material and cultural standard of living of a nation. Many countries have designated postal and telecommunications construction to be of high priority in economic development.

#### Current Status of Post and Telecommunications in This Country

During the three decades since the establishment of the People's Republic, significant progress has been made in the postal and telecommunications industry of this country. At the end of 1981, the total length of postal routes reached 4.66 million km, which represented a 5.6-fold increase over the pre-liberation period; long distance phone lines totalled 23,900, which was an 8.3-fold increase; telegraph circuits totalled 8,800 lines, which was a 3.1-fold increase; and there were 2.179 million intracity telephone switching

units, a 7-fold increase. Postal service is available to 99.6 percent of the communes and 96 percent of the production brigades; telephone service is available to 95.5 percent of the communes and 58 percent of the production brigades. Considerable progress has also been made in providing communications service to regions of minority races. All these accomplishments could not be matched by the postal and telecommunications service of old China.

With increasing contacts and trade with foreign countries, there has also been rapid development in international communication in this country. In postal service, we have established direct mail exchange with 111 countries around the world, which includes regular letters and parcels. In telecommunications service, we have established direct telegraph, telephone, user telegraph, and picture telegraph circuits with 46 countries around the world and have set up offices with dedicated leased circuits in 12 countries and regions. We have also made arrangements with major countries on the continents of Asia, Africa, Europe, America, and Oceania to transmit television and radio programs.

However, the current status of postal and telecommunications service in this country is still inadequate and terribly underdeveloped. Although the situation has improved since the policy reform took place, post and telecommunications are still a weak link in the national economy; it is also the most underdeveloped segment of the transportation and communication system, unable to meet the demands of the four modernization programs and people's needs. The deficiencies are particularly evident in the following areas.

1) There is a serious shortage of intracity telephone equipment, particularly in large and medium size cities. Since the establishment of the People's Republic, the nation's industrial and agricultural production has increased by a factor of 15.1, and the total industrial output has increased by a factor of 46. But the number of telephones only increased by a factor of 7, and the number of telephones in cities larger than state capitals merely doubled. On the national average, every 100 persons share less than half a telephone; in Beijing City, the availability rate is only 5 telephones per 100. There are serious problems with getting telephones installed and successfully completing calls. In cities larger than state capitals, the number of users waiting for telephone installation exceeds 300,000.

2) There is also a shortage of long-distance phone circuits. Since the liberation, long-distance telephone traffic has increased by a factor of 23.5, but long-distance circuits only increased by a factor of 8.3; telegraph traffic has increased by a factor of 13.2, but telegraph circuits only increased by a factor of 3.1. The increase in traffic greatly exceeded the increase in communications capability. Currently there are only 20,000 long-distance telephone lines around the country, which is only 1 percent of the capacity of Japan. Also, most of them are cables connected by telephone towers. Because of the shortage of phone lines, low quality, and underdeveloped technology, long waiting times are often encountered in making long-distance calls and call cancellations are frequent.

3) There is a lack of service networks in post and telecommunications and a shortage of manpower at each service station; as a result, transportation and delivery capacity are inadequate and delivery speed is slow. Since the liberation, the amount of letters, newspapers, and magazines have increased more than tenfold, but the number of postal and telecommunications facilities increased by less than a factor of two, resulting in highly crowded conditions in the use of space in post offices and distribution houses. In some cases, due to the limited space, new publications cannot receive full distribution. In other regions, the post offices are forced to limit their mail service because they cannot handle the rapidly increasing amount of merchandise and packages; consequently, the flow of goods and the development of local industries are adversely affected.

4) Due to the serious deficiency in international communications, demands in foreign contacts and foreign trade cannot be met. In recent years, the traffic in international communications has increased rapidly, but the available communications equipment is out-of-date and inadequate. In international communications bureaus in Shanghai and Beijing, the user telegraph machines are already carrying full loads; and many foreign users are anxiously waiting for new machines to be installed. International telephone switching systems are mostly manually operated; they are generally very slow and involve long waiting times.

5) The number of categories of postal and telecommunications services is insufficient to satisfy the needs of the various departments. In order for the various departments of national economy to carry out the tasks of production distribution, scientific management, and scientific tests, rapid transmission and exchange of information is required. In some cases, it is necessary to establish a computer network which uses high-speed, high-efficiency, and high-volume communications equipment for transmission of data and pictures; currently, these goals cannot be achieved on a large scale.

The underdeveloped status of the post and telecommunications is partially caused by the "left-wing" influence over the years, particularly the damaging effects of Lin Biao and the "Gang of Four". However, it is also attributed to the following factors. First, there has been too little investment in post and telecommunications development in previous years. During the early phase of the People's Republic, investment in post and telecommunications was 3.5 percent of the national construction budget; later, however, it decreased to around 0.8 percent, which severely affected the development of the post and telecommunications industry. Second, the postal and telecommunications service and various publications have traditionally adopted a low-price policy; the depreciation fund received was also very low; consequently, it has been difficult for the Ministry of Post and Telecommunications to accumulate sufficient capital for development. Third, the construction of telephone or postal facilities within a city generally is not part of the urban development plan; hence, difficulties are encountered in land allocation, removal of existing structures, assignment of labor, or installation of underground pipes etc.; and the construction task cannot be carried out according to plan. Fourth, because of the poor management of the post and telecommunications industry,



there is no coordinated plan for development nor is there emphasis on investment return; some construction projects generated no benefits over a very long period.

#### Efforts to Increase Post and Telecommunications Development

For the next 20 years, dedicating our efforts to the development of post and telecommunications will play an important role in China's economic development and in the development of the material and spiritual doctrines of socialism. During the "6-5" period, the first priority is to relieve the crisis situations in post and telecommunications and in trunk line communications of major cities. To accomplish this requires an increase of 700,000 intracity switching units and 6,000 long-distance circuits, as well as constructing 400,000 square meters of new production space for postal services at central distribution points and major cities; remodeling, expanding, and constructing 2,700 post offices; and building a new Beijing International Telecommunications Bureau. In order to solve the problem of providing communication and television services to remote regions, tourist spots, and key industrial and mining bases, the Ministry of Post and Telecommunications plans to establish a domestic communications network by leasing international communications satellites and building new ground stations at selected locations. To accelerate post and telecommunications development depends on sound policies, good management, and the use of scientific technology, as outlined below.

- 1) We must establish a long-range plan based on China's actual situation. But, first, we must solve the immediate crisis in communication; once the crisis is relieved, we can start devoting our efforts to the modernization of our communication system. We must have an overall plan and coordinate our efforts based on technical and economic analyses; we must also do our best to increase the return on investment and combine needs with feasibility. We must not blindly spend our efforts and dilute our resources. We must utilize advanced communication technologies such as microwave and satellites and gradually build up a versatile and flexible communications network based on electric cables and microwaves.
- 2) We must strengthen our management team and improve efficiency. The Ministry of Post and Telecommunications must regard service to be of number one priority in order to ensure the quality of communication. With improved management and higher profits, it must try to accumulate capital and expand its production capability. In the immediate future, a complete reform of the post and telecommunications industry is needed.
- 3) We must initiate affirmative and steady efforts to achieve reform of the post and telecommunications management system. We must eliminate such deficiencies as concentration of power, mixing politics with business, and unfair distribution policies. We must establish a system of financial responsibility suitable for post and telecommunications and take steps to implement special accounting procedures and full-scale accounting procedures for the communication industry.

4) We must increase our scientific research efforts in post and telecommunications in order to achieve technological reform and renovation. The Ministry of Post and Telecommunications must develop a coordinated program to combine the results of scientific research with production and utilization. It must also strive to reduce the cycle time between research, production, interim tests, and utilization so that the results of scientific research can be quickly converted to advanced technology which will enhance the capability of post and telecommunication. In addition, funds of foreign exchange should be carefully allocated to import advanced technology and key equipment from other countries.

5) We must provide training programs to improve the political awareness and technical standards of the employees. We must emphasize post and telecommunications education. In particular, we must establish a sound training program for the administrators and provide supplementary classes on cultural and technical subjects for the younger employees. We must also encourage post and telecommunications employees to participate in self-improvement programs.

#### Support and Aid From Local Governments

To accelerate post and telecommunications development, the Ministry of Post and Telecommunications must depend on its own persistent efforts and improved management skills. But many problems cannot be solved by the Ministry of Post and Telecommunications alone. Last March in a bulletin responding to a report by the Ministry of Post and Telecommunications, the State Council pointed out: "All concerned departments and regional governments should provide additional support and aid to the development of post and telecommunications." In particular, local governments and departments should provide maximum support to the Ministry of Post and Telecommunications in the following problem areas.

1) The problem of including post and telecommunications development in the urban development plan of major cities. In the past, because communications development was not part of the urban development plan, difficulties were encountered in land allocation, removal of existing structures, assignment of labor, installation of electric cables and pipes, and construction of additional service networks. As a result, some major projects were delayed for several years after plans were drawn and funds were allocated. Therefore, it is hoped that the planning and development departments of local governments will include post and telecommunications development as a major part of urban development plans, in accordance with the State Council's directive.

2) The problem of accelerating intracity telephone construction. Since 1981, an independent accounting system has been established for city telephones; profits and initial installation fees are retained by city telephone bureaus for the exclusive use for future constructions. But to construct a city telephone unit requires a large investment; in a large city, each new unit costs 2,500 yuan; in a smaller region or city, it costs 1,500 yuan. Furthermore, constructing a new branch bureau involves many problems. Therefore, the construction of new city telephone units should be funded jointly by central and

local governments. In medium and large cities, the Ministry of Post and Telecommunications should be responsible for overall planning and providing funds for mechanical equipment; whereas local governments should be responsible for other investments such as civil construction, pipes, and lines.

3) The problem of communication development in farming communities. Telephones in farming communities play an important role in such activities as emergency rescues, scientific experiments, and border defense. But, at the present time, the administration of farm telephone service is rather unorganized and abuses such as incidents of dismantling telephones have been frequently reported in recent years. Such incidents should be brought to the attention of the proper authorities. It is hoped that local governments will strengthen their leadership and management of telephone services in farming communities. These telephone services must be included in the provincial development plan, with proper allocation of funds. Furthermore, additional message receiving and transmitting stations should be constructed and additional personnel trained to operate the stations.

4) The problem of coordinated development of post and telecommunications. The Ministry of Post and Telecommunications is a low-profit organization. It is difficult to rely on its own capital accumulation to realize the development plan during the "6-5" period. In order to accelerate communications development, not only is it necessary for the central government to establish favorable policies for post and telecommunications, but the ministry of Post and Telecommunications must actively solicit local investments and user contributions. In recent years, encouraging results have been obtained in this regard in the provinces of Shangdong and Henan and in the cities of Shanghai, Tianjin, and Beijing. For example, in 1979, the Ministry of Chemical Industry and the Ministry of Coal Industry jointly invested 3.07 million yuan to be managed by the Ministry of Post and Telecommunications to construct two symmetric cables between Beijing and Shou County of Hebei Province and to install a 60-line carrier terminal and other equipment. This project has already been completed and put into production. In the future, the Ministry of Post and Telecommunications will continue to cooperate with other organizations in joint construction projects and, in return, allow favorable terms to these organizations.

5) The problem of duplication of efforts in communications development. Because of the prolonged poor conditions that existed in post and telecommunications, some departments have developed their own communications facilities to satisfy their individual needs. This resulted in a variety of diversified systems, nonuniform technical standards, overlapped use of frequency bands, uncoordinated management policies, as well as criss-crossing underground pipes and cables, randomly installed telephone poles, and interfering air waves. As a result, the quality of communications is adversely affected. In case of emergency, the lack of a unified command to coordinate these systems may lead to serious consequences. Therefore, there is an urgent need to standardize the planning and management of communications networks.

3012  
CSO: 5500/4139

PEOPLE'S REPUBLIC OF CHINA

BRIEFS

**POWER TRANSMISSION CABLE PROJECT**—Cables of the Beijing-Wuhan-Guangzhou power transmission coaxial cable project, one of 70 priority projects of the country, have been laid in Changsha, Hunan, and the project will soon be carried out in Guangdong Province. In order to ensure the smooth progress of the project in the province, the provincial people's government held on 17-18 June a special meeting to arrange relevant work. At the meeting, relevant instructions of the State Council and demands of the Ministry of Posts and Telecommunications were communicated. Responsible persons of relevant prefectures, cities, and counties attending the meeting have unified their understanding and defined their tasks, expressing their determination to support resolutely the construction of the priority project. A leading group for the project was established at the meeting with Liu Junjie, provincial vice governor, as its head. Liu Junjie delivered a speech at the meeting, calling on all areas concerned to establish leading groups and corresponding offices for the project as soon as possible and to make good preparations. [Summary] [HK241202 Guangzhou Guangdong Provincial Service in Mandarin 1000 GMT 23 Jun 83]

**JILIN DIRECT DIAL PHONES**--Changchun City Telecommunication Bureau in Jilin Province has installed the direct distance dialing equipment. Changchun city can directly communicate with some 20 major cities of the country by telephone. [Summary] [Changchun Jilin Provincial Service in Mandarin 2200 GMT 5 Jun 83 SK]

CSO: 5500/4163



## VIETNAM

### SRV ASSISTS LAOS, KAMPUCHEA IN COMMUNICATIONS

OW102355 Hanoi VNA in English 1517 GMT 10 Jun 83

[Text] Hanoi, VNA, 9 Jun--In the current world communications year Vietnam's postal service is stepping up its cooperation with and assistance to the two neighbouring countries, Laos and Kampuchea.

With regard to Laos as early as 1961, Vietnam has helped Laos build a broadcasting station and a telephone exchange in the liberation zone of Laos. From 1964 to 1968, Vietnam supplied Laos with six medium-sized transmitters, assembled 16 wireless stations at provincial level, 16 others at district-level, and helped Laos set up the civil postal service, six mail stations and dozens of mail lines totalling thousands of kilometres.

A major central transmission reception station and a long-distance telephone exchange with more than 160 kilometres of telephone line were built for Laos in the years from 1971 to 1974.

From 1961 to 1976, Vietnam sent more than 200 postal experts and about 100 postal workers to Laos.

Vietnam has also helped train either in Laos or in Vietnam nearly 600 Lao postal workers and technicians at all levels. Three-fourths of the districts in Laos now can communicate by telegraph and telephone.

With regard to Kampuchea, following the liberation on January 7, 1979 Vietnam sent specialists to Kampuchea to help restore the postal service completely destroyed by the Pol Pot-Ieng Sary clique, rally the former postal workers who had survived from the genocidal regime, train new postal workers and reorganize the postal service throughout the country. In February 1979, the postal service of the People's Republic of Kampuchea was officially established. Vietnam has also helped Kampuchea build four field telephone networks with exchanges each having from 20 to 60 numbers, restore the 4,000 number central exchange in Phnom Penh and the mail lines from Phnom Penh to various provinces.

In 1981, with equipment supplied by Vietnam, Kampuchea built a micro-wave station to improve telephone communications between Phnom Penh and nearby provinces, a flood-alarm communications system and a communications network at Kompong Som Harbour.

By September 1981, 19 cities and provinces in Kampuchea already had their telephone systems with 29 exchanges and more than 1,600 sets including 950 automatic sets.

From 1980 to 1982, the Vietnamese postal service trained 565 postal workers for Kampuchea.

Vietnam is currently helping Kampuchea in survey for the construction of new postal projects.

CSO: 5500/4348

# JAMAICAN COLUMNIST ASSESSES TELECOMMUNICATIONS PARLEY

Kingston THE SUNDAY GLEANER in English 29 May 83 p 12

[Article by Margaret Morris]

[Text]

Initially, the Telecommunications Parley in Ocho Rios seemed diffused, chaotic, and confusing. I felt "like a puss in a pear walk" not knowing where to begin, what theme to pursue. There was so much information, so much of it highly technical. One felt the need for a personal computer to sort the data, and search the salient facts.

Did you know, for instance, that optical fibres (whatever they are) may ultimately prove more cost-efficient than satellite communication except over the longest distances? Or that in the next decade some \$640 (six hundred and forty) BILLION dollars will be spent on telecommunication equipment worldwide? Or that in California there is a co-axial cable that can transmit a 76 page newspaper from city-to-city in just one second? Do you know what Telematics means? It is the name for the combined technologies of telecommunications and computers. These have coalesced and are now, apparently, less divisible than Siamese twins.

However, after a while a pattern began to emerge and it was possible to identify the various interest groups and their pre-occupations. There were the policy makers and power-brokers, each emphasizing his country's current stance. Mr. Mark Fowler, chairman of the U.S. Federal Communications Commission optimistically proclaiming that "the forces of the market place will begin to work on behalf of the common man"; Mr. Nigel Barrow, Minister of Information of Barbados voicing the Caribbean's suspicions about technological colonization; Mr. Mike Henry, asserting, in a somewhat low-key manner, Jamaica's rights over Jamaica's "airspace".

There were the professional Conference participants, persons who vocalize at inordinate length about self-evident facts. And there were the catalysts, like the Gleaner's Oliver Clarke, persons who dearly love to throw the cat among the pigeons in order to stimulate germane discussion. There were the salesmen, plenty of them; and there were the customers — the potential technology consumers of the Caribbean basin.

## Nothing new

The professed object of the conference, which was hosted by Caribbean-Central American Action and the Private Sector Organization of Jamaica, and cosponsored by ten U.S. communications corporations, was "to identify and act upon ways that the telecommunications revolution can help Caribbean nations achieve their goals for economic growth and social development." As such, it was something of a damp squib. In fact, the "last word" of the last session came from Belize and a participant who declared that he had learned nothing new but had spent two days being subjected to high pressure sales talk, something, he said, that he was not accustomed to having to pay for.

This is something that emerged very clearly from all the conference verbiage: the fact that the developing world, and specifically the Caribbean Basin is now perceived as a huge new market by the technology producers of the U.S., the purveyors of "High Tec" "Hardware" and "Software". It looks as if there is going to be some robust and cutthroat competition for our meager supply of foreign exchange.

## Common purpose

Another interesting feature was the evidence of a sense of common purpose amongst the Caribbean countries. It was very encouraging to hear Bajan Mr. Barrow allowing that "even recent serious trade problems have not been able to remove the unity of Caricom". Let us hope that this is not just euphoria.

Perhaps the most interesting, and crucial philosophical conflict that arose concerned the challenge of the "free market" and deregularization versus international governmental co-operation. Mr. Fowler of the F.C.C. went to bat for the current U.S. policy of free competition and the removal of regulatory mechanism, in his opening address. This was answered by Mr. Jose Alegret of Intelsat a member of a panel discussion on "Policy Directions to meet changing telecommunications technologies." Mr. Alegret departed from his prepared speech to focus on the challenge to INTELSAT which is a non-profit international satellite communications organization. The threat is posed by the current bid to change the U.S. Communications Satellite Act of 1963 in order to allow other corporations to duplicate and compete with services currently offered by Intelsat.

Intelsat is described as "an international legal entity with an owner's equity of about \$860 million in which 109 countries — including Jamaica — hold investment shares." It originated in 1964 as a joint venture between 11 countries. COMSAT, the designated U.S. participant is the largest shareholder with 24%. Intelsat has 14 satellites aloft and 410 earthstations, including the one at Yallahs, in 141 different countries. The global network provides: telephone and telex links, transmission of high-speed computer data, transmission of facsimile copies of documents, and Television broadcasts including video "conferencing" which allows people to "meet" via satellite.

## Competitive

The Intelsat lobby contends that the Intelsat charter is not "just a commercial agreement" but should be respected as international law. Up until now Intelsat has been protected from competition but the free market lobby which is trying to get the U.S. Communications Satellite Act changed is now demanding that Intelsat be "competitive".

"Competitive to what?" asks Mr. Alegret. "Intelsat was not created to be competitive, it was created to be the property of all the world's people". He maintains that the growth and development of Intelsat "is perhaps America's greatest contribution to world peace, and to the growth and development of Third World countries."

It is an interesting debate and one that Jamaica, as a fractional owner of Intelsat ought to monitor carefully.

I left the conference somewhat bemused but convinced of two things: The first is that the United Nations is going to have to get busy and compile a Law of the Airspace to complement the Law of the Sea. Technology will always be light years ahead of the minutiae of the laws, but basic principles will have to be established, precepts by which the proliferating rights disputes can be decided.

The second is that Jamaica must begin a broadbased public education programme to prepare us for, and help us to cope with, the choices, the challenges and the dangers of the Age of High Technology.

Telematics Literacy is going to be a necessary survival skill.

## INTER-AMERICAN AFFAIRS

### BRIEFS

**ANDEAN TELEVISION NETWORK**--The documents for the creation of the Andean Television Network [Cadena Andina de Television], the purpose of which is to exchange news and television programs among its participants, were signed yesterday in Bogota. Present at the ceremony were Jaime Soto, director of Contrapunto [not further identified]; Carlos Paz, director of Panamericana de Television of Peru; Clemente Cohen, director of Radio Caracas Television; as well as Alberto Rojas, representative of the Andean Network in Bogota, and Mariano Kossowski, also of the Andean Network. [Text] [Bogota EL TIEMPO in Spanish 10 Jun 83 p 4-a PA]

CSO: 5500/2079

## CHILE

### SPECIAL TRAINING HELPS SCIENTISTS USE SATELLITE IMAGERY

Santiago ERCILLA in Spanish 23 May 83 pp 47-48

[Article by Telmo Melendez: "Chile Goes into Orbit"]

[Text] Only about 30 Chilean professionals are familiar with the techniques for utilizing the valuable information that manmade satellites provide about the earth's surface. And of this small group of experts, practically none applies his knowledge to solving the problems posed by the discovery, care and rational development of the natural resources in our country, which we know is a potentially rich storehouse of them. The regrettable thing is that we do not know exactly where mother earth is hiding these resources and, therefore, we cannot harness them appropriately.

Chile, which has traditionally been one of the first to incorporate the technology that mankind has developed, is being left behind as other growing nations make satellites a powerful tool for development, especially in agriculture, mining and forestry. The ironic thing is that one of the first practical applications of satellite information in our country was made by the Internal Tax Service, which did so wisely but to the great fear of taxpayers. But just as Landsat provides information on the agricultural use of soils, precisely indicating the type of crop and even the outcome of the harvest, it can also furnish geological, hydrological and oceanographic information and has countless other applications.

The major exception is the Space Studies Center (CEE), Nasa Division, of the University of Chile. Its director, Eduardo Diaz, an engineer by profession, sums up the current situation in a few words: "It's a vicious circle because the technology is unfamiliar and it is unfamiliar because it is not used."

To break this circle it is essential to train various types of professionals in the techniques of interpreting satellite imagery, but unfortunately the cost of this is high. A trip to the United States to attend a training course represents an investment of more than \$3,000. Determined to break the circle, the CEE found a solution by organizing a training seminar in this technique, which is called remote sensing. The seminar

will be held between 30 May and 10 June, with the support of the FAO and the cooperation of the air force's Air Photography Service. The much less expensive and just as effective answer was to provide the training at home.

"We had to bring in experienced experts," Diaz explains, "to teach a core of Chilean professionals about the advantages of this technology and how to use it. It is not a question, as on other occasions, of their coming to explain to us what other countries are doing, but instead, of learning to do it ourselves. Agronomists, marine biologists, geologists and experts in forest resources will be able to familiarize themselves with remote sensing.

#### Water in the Sahara

Remote sensing is not in its infancy as a technology. The pioneers of air photography, who used instruments to observe the earth from aircraft, paved the way for today's incredible technology, which has even found water under the Sahara. The space shuttle Columbia performed an astounding feat on its second flight when its radar uncovered evidence of old paths and underground rivers extending thousands of kilometers and in some spots as wide as the Nile Valley. Scientists are guessing that these river beds, which are some 5 meters deep, could contain water that has been trapped for about 9,000 years.

The technology is not yet available for mass use, but England hopes to orbit a satellite with radar equipment to obtain similar results. So far, almost 50 countries have received training in the technology of the Landsat natural resources satellite and in its practical applications, and 10 nations, including Argentina and Brazil, operate their own receiving stations.

The remote sensing of natural resources began with the July 1972 launching of the first Landsat. Two others have been launched since then, and the fourth Landsat will have even greater powers of resolution, thus making the sensing more precise.

Instruments register the features of the earth's surface by detecting and measuring the energy (light or heat) emitted or reflected by vegetation, soil, water or geographic formations. They do not actually take photographs, as do the weather satellites, the only ones that our country regularly uses. What they do is transmit the information gathered by their sensors in a radio signal coded in the digital language of computers. The computer then transforms it into a brilliant color photograph.

Desert areas, for example, appear in yellow, while dry earth vegetation looks red or pink.



"Since the human eye is capable of differentiating a wide range of color shades," Eduardo Diaz notes, "with these 'photos' alone interpreters can distinguish a great many features of the earth's surface."

Another advantage is that a satellite passes over the same spot many times (every 16 days for Landsat), taking new photographs, which can then be compared with previous ones to study the changes in a dynamic phenomenon.

"The government is investing heavily in reforestation," the CEE director explains, "and it is important to find out what is happening with the forests, whether they are being maintained, have been pared back or how many hectares have been damaged by forest fires."

In addition, the Space Studies Center will soon be able to receive the information directly from satellites and thus meet the demand that has developed in the country. At present, the satellite images are received from other specialized centers for several specific projects ordered by government agencies. At the conclusion of the seminar, the CEE hopes that professionals from various fields, in both private enterprise and government, will be able to interpret for themselves the satellite images, so that Chile can finally blast into orbit with the latest remote sensing technology.

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CSO: 5500/2077



## TELECOMMUNICATIONS CORPORATION LOOKS TO IMPROVEMENTS

### Equipment From Brazil

Georgetown NEW NATION in English 22 May 83 p 8

[Article by Aubrey Calder]

[Text]

General Manager of the Guyana Telecommunications Corporation, Cde John King, told newsmen Tuesday that his organisation proposes to purchase equipment from neighbouring Brazil to rehabilitate its obsolete and fault-prone machinery.

GTC also intends to upgrade its technical and other services in order to provide a better service to its customers, he added.

Cde King said payment is to be effected in Guyana dollars in view of the fact the Brazilian government has shown a willingness to deal in the local currency.

Executive Chairman of the Information and Communication Services Group of Guystat Cde Lambert Philadelphia, also addressed the newsmen on the occasion of the 15th International

Telecommunications Day and World Communications Day.

He said GTC was in a fortunate position as a foreign exchange earner.

He added that the corporation was now contemplating approaching central government for assistance in revamping GTC's priority allocation of foreign exchange, so that the corporation could better use its earnings to improve consumer service.

For its part, GTC has introduced a system in which consumers may now pay their bills at post offices as a matter of convenience, he said.

This system would also enable GTC to collect its revenue faster than if the customer had to travel to the city to effect payments, he added.

## Use of Local Resources

Georgetown SUNDAY CHRONICLE in English 22 May 83 p 16

[Text] The Research and Development Division of the Guyana Telecommunication Corporation (GTC) is looking into ways and means by which the corporation could use local material for repair and maintenance in place of imported material.

Deputy General Manager, Engineering, Michael Welch, is spearheading this operation and already some indigenous material has been used in a major repair job to protect cables at Linden.

GTC General Manager John King disclosed this on a "Face-the-Nation" programme and explained how the current economic crisis had affected the corporation's efforts to meet customers' demand and make the service more efficient.

Cde King said the R&D team was working to ensure that the public did not suffer unduly because of the shortage of imported materials. Cde King, who publicly acknowledged the dedication of technicians, said they had been very innovative in the face of recurring problems resulting from the poor state of the line plant.

According to the General Manager, GTC achieves a level of 500 fault clearings out of 600 reports per week throughout its network, comprising 23 exchanges. He explained too that the lack of adequate transportation affected the moving of technicians to fault areas quickly.

Giving a background to the current problems in the telecommunication system, Cde King said the lesson GTC had learnt is that expansion programmes must be executed as a total unit and not phased.

GTC had started an expansion programme in 1976 which comprised the installation of the "5" number exchange, acquisition of additional telephones and line plant. But the phase which called for the line plant proved futile as the corporation had not been able to purchase cable.

Recently, however, GTC has been looking to Brazil and it is hoped that the Corporation would be able to purchase cable from that country and satisfy customers including those who have been waiting patiently and so long.

Cde King raised hopes for the introduction of direct distance dialling overseas "in the not too distant future" but stressed that the answer to that problem would lie in an improved economic situation, since the "plans of the GTC are subject to the national plans."

Also planned for this year is the introduction of DDD to the Rupununi where GTC already has a building and the equipment; attendant facilities, however, such as reliable power supply and distribution to connect subscribers to the switching exchange and the national network also have to be available, Cde King pointed out.

Meanwhile, in the drive to make the system more efficient, attempts are being made to improve the existing network by concentrating on maintenance. Work has been done in the Ruimveldt area and work is going on in Kingston. The corporation is looking at other areas where, because of the large network, maintenance would be selective and time framing and sequence imposed, he added.

Cde King said the main cause of the faults was the obsolescence of equipment, some of which was 20 years old and needed replacing.

"We will replace where we can, and where we cannot, we will concentrate on maintenance," the General Manager told interviewers.

..Other areas of improvement include manpower skills, Cde King revealed.

CSO: 5500/7576

## BRIEFS

LINDEN TELECOM PROGRAM--Linden: (GNA) Guyana Telecommunication Corporation (GTC) is carrying out a major rehabilitation programme in Region Ten in an effort to improve the telephone service here. An official of the Corporation estimated that the project when completed will cost the Corporation about three million dollars. At present workers are concentrating on the servicing of the Linden exchange. Work is in progress on replacing cables that service consumers in the Fairrust, Watooka and Richmond Hill areas. It is understood that these cables have been in service since the mid-fifties when the Linden exchange was first established. With the completion of this project, the rehabilitation team plans to begin work on the West Bank as far as Wisroc Housing Scheme where main cables have already been laid. And folk in the Kwakwani area are likely to be serviced by a modern electronic system to be installed in place of the obsolete Unit Automatic Exchange (UAX) system now in use. The UAX system can only accommodate five calls, either way, at the same time. However, with the installation of the new electronic system, quite a large number of consumers in Kwakwani will be able to call out of the exchange at the same time. [Text] [Georgetown GUYANA CHRONICLE in English 26 May 83 p 1]

CSO: 5500/7576

## BRIEFS

LOAN FOR TELECOMMUNICATIONS--The Export Development Corporation has agreed to provide a loan of U.S. \$7.5 million to the Jamaica Telephone Company to purchase telecommunication equipment and expand the company's ongoing development programme. Ministry Paper 21 spelling out the terms and conditions of the loan was tabled in the House of Representatives on Tuesday by House Leader, the Hon J.A.G. Smith, on behalf of the Prime Minister and Minister of Finance, the Rt Hon Edward Seaga. Interest on the loan will be at 13 and 1/2 percent per annum, on the amount advanced, payable semi-annually, beginning 6 months after the first repayment date. The loan will be repaid by 10 equal and consecutive semi-annual instalments, the first due from July 1, 1985, or 6 months after the delivery and installation of goods and services, whichever is earlier. The Jamaica Telephone Company will pay the Export Development Corporation a commitment fee of one percent annum on the amount of the loan withdrawn. Security is a formal guarantee of the Government of Jamaica. The House of Representatives is being asked to approve the guarantee of payment of interest and the repayment of the subject loan under the Approved Organization and Authorities Loan (Government Guarantee) Act, the Ministry Paper said. [Text] [Kingston THE DAILY GLEANER in English 2 Jun 83 p 2]

CSO: 5500/7579

AGREEMENT WITH COLOMBIAN RADIO NETWORK DESCRIBED

PA172324 Managua Radio Noticias in Spanish 1200 GMT 17 Jun 83

[Excerpts] Dear listeners: We want to give you some good news this morning. We say it is good news because it will strengthen the communication between you listeners of Radio Noticias and "The Awakening" newscast and we news reporters. After these 4 days that we were off the air, and now that thanks to God we are once again back with you, we want to tell you that this station and the three newscasts that keep you informed are taking a number of steps to strengthen the news system of Radio Noticias.

First of all, we want to tell you that we are very grateful for all the telephone calls we received during the 4 days we were unfortunately unable to transmit the news. As we have explained, it was caused by damage in the transmitting plants that prevented us from reporting on Monday, Tuesday, Wednesday, and Thursday. But now we are returning with renewed enthusiasm. We want to report to you that Radio Noticias and the Colombian Caracol network are working to establish lines of news cooperation. As many of our listeners know, the Caracol network is the strongest station as far as news is concerned in all of Latin America. It includes 96 stations that transmit news in a network, and has a journalistic team of more than 50 professionals. It has newscasts at all times and more than 15 correspondents throughout the world. All of this is going to be integrated in a cooperative manner with the Radio Noticias service that we give you daily.

In order to reaffirm what we said earlier about our visit to Bogota, Colombia, regarding the lines of cooperation between Radio Noticias and the Caracol network, we are going to present a journalistic friend, Jorge Rincon, the coordinator of the Caracol newscasts, who will speak to the Nicaraguan people:

[Begin recording] [Rincon] First of all, very cordial greetings to all Nicaraguans. I would like to announce to you an agreement between this Nicaraguan radio station and the Caracol radio network. It is an exchange of information on events that occur in your country and ours. Through this information system we will be reporting to both the Nicaraguans and the Colombians about the events that are of interest to our two nations. We are pleased to announce this agreement that we have signed in Bogota to be able to better report the events that occur in each of our two countries.

[Unidentified reporter] Can you tell us about the development that Caracol has achieved and how you have achieved this?

[Rincon] Caracol's news and technical development has been astonishing. In recent years, we have achieved great technological development in the network's news services. At this time, the news programs have correspondents all over the world. We have about 50 correspondents in the main capitals and cities of the world, and we are continually reporting on all the important world events. We frequently send Colombian reporters to cover specific events such as the British elections and the UNCTAD in Belgrade. Caracol reporters are sent to cover all the important international news events.

CSO: 5500/2080

## NICARAGUA

### BRIEFS

**RESTORING TELEPHONE COMMUNICATIONS--San Miguelito--**A team of TELCOR [Nicaraguan Telecommunications and Postal Services] is working hard to restore telephone service between Chontales and Rio San Juan, which deteriorated and became inoperative a long time ago. Members of the 19 July Sandinist Youth are cooperating in this work. [Summary] [PA170408 Managua BARRICADA in Spanish 14 Jun 83 p 4]

**NEW TELEPHONE EXCHANGES--**New automatic telephone exchanges were put into service yesterday in Chinandega, Chichigalpa, Corinto and Somotillo. The exchanges were installed with technical aid from the GDR. The new telephone system includes 11 automatic branch exchanges. [Summary] [PA170408 Managua EL NUEVO DIARIO in Spanish 10 Jun 83 p 4]

**INTERSPUTNIK GROUND STATION--**Deputy Commander Enrique Schmidt, minister-director of TELCOR [Nicaraguan Telecommunications and Postal Services], and Yuri Roubtsov [name as published], economic adviser for the USSR Embassy in Nicaragua, have signed a contract to draft a project for the construction of an Intersputnik ground station--a communications state. The event was also attended by Companero Jose Maria Alvarado, deputy minister of TELCOR. [Text] [Managua BARRICADA in Spanish 14 Jun 83 p 6 PA]

CSO: 5500/2080



## TRINIDAD AND TOBAGO

### BRIEFS

**TELCO DATA SYSTEM**--The Trinidad and Tobago Telephone Company (TELCO) has installed a computerised Exchange Data Collection and Analysis System--TEDCAST--for monitoring and facilitating the operations of the older, step-by-step exchange. According to Mr Neil Giuseppi, public relations manager of the company, economics and timing do not permit for all of the exchange in the country to be immediately converted to the digital system. As a result, step-by-step systems are maintained in certain areas such as Belmont, Diego Martin, Santa Cruz, Sangre Grande and Scarborough. The nerve centre of the computer (above, with assistant engineer Mr Arthur Ramjattan) is in the Nelson Exchange, Port of Spain with smaller, monitoring units in the other exchanges. Using print-outs, TEDCAST regularly reports on the status and usage of lines, pointing out where maintenance or inspection is required. In addition to diagnosis and monitoring, TEDCAST allows telephone engineers to provide for additional services as are necessary to ensure the continued well-being of the system. [Photo caption: photo not reproduced] [Port-of-Spain TRINIDAD GUARDIAN in English 26 May 83 p 6]

CSO: 5500/7577

## BRIEFS

SATELLITE EARTH STATION--A 120 million rupee satellite earth station is being set up at (Vashi) in New Bombay for maritime communication through satellite. The additional director general of overseas communication service, Mr Narasimhan, said in Pune that the project when completed in 1985, will cover an area from Japan on the east to African continent on the west. He said expansion work of Arvi earth station is expected to be completed in 1984 at a cost of 60 million rupees. [Text] [3K190028 Delhi Domestic Service in English 0830 GMT 17 Jun 83]

GAUHATI RADIO STATION--The Ministry of Information and Broadcasting has taken a number of measures to improve the All India Radio network in the northeastern region. The deputy minister for information and broadcasting, Mallikarjun, told our Gauhati correspondent that, before the end of the current plan period, a 50-kw shortwave and an additional 10-kw mediumwave transmitter will be set up in Gauhati. [Text] [3K190028 Delhi Domestic Service in English 0240 GMT 17 Jun 83]

CSO: 5500/4745

## BRIEFS

**NEW FM RADIO STATION** — Yesterday, Kol Yisrael opened a new network for service to listeners, and thus joined the advanced stations in the world of broadcasting. "Voice of Music" — the new network will broadcast during 19 hours, in FM stereo, quality classical music. It will be the only station not broadcasting advertisements, and will thus serve as a refuge for listeners who not only want to enjoy music, but also to flee from actualities and the news. Sixty percent of the broadcasts will be based on the tonal classical repertoire, responding to the expectations of the classical music lover. "Voice of Music" is the fourth station of Kol Yisrael in the Hebrew language. Station A will be the station delivering news, as well as a variety of broadcasts to "special audiences", which means groups within the population which need a special type of program. For example, children, parents, teachers, etc. On this station will be broadcast each day a new program "Daily Meeting" in which reporters will broadcast live from development towns and other distant places. The program will create a link with the listeners, and will deal with instruction on good citizenship, quality of life, consumerism, etc. Night programs will be based on live broadcasts, with the participation of the listeners by telephone. They will deal with issues and problems with the goal of helping people in daily life. Station B will deal with actuality matters and live broadcasts. Station C will continue to broadcast light and popular music. [Text] [Tel Aviv HATZOFE in Hebrew 2 May 83 p 4] 7075

CSO: 5500/4528

## SATELLITE LINK WITH AMERICAN UNIVERSITY BEING NEGOTIATED

Karachi DAWN in English 8 Jun 83 p 4

[Text] ISLAMABAD, June 7 — Dr Mohammad Afzal, Federal Minister for Education, said here today that negotiations were going on with the University of South Carolina, USA, for "linking our engineering universities with it through satellite to impart engineering education to our students."

He was speaking at the second convocation of the Allama Iqbal Open University.

The Education Minister, who is also the Pro-Chancellor of the Open University, said the South Carolina University "is already imparting engineering education through satellite to about 12 universities in the USA, Canada and Mexico."

He said that once linked with this network, it would help "us in meeting with the shortage" of qualified teachers in subjects such as engineering and other technologies.

He said the University Grants Commission, with the assistance from the University of South Carolina, had embarked on a programme of developing video-cassettes in various fields of engineering.

## Distance learning

The Education Minister also backed the idea of "university in the air." He said this system could very usefully be employed "in a country like ours". Under this system, already working success-

fully in the USA, a student could pick and choose the best possible courses in the best possible universities.

A student of engineering, for example, could pick a course in one subject at Harvard and so on from various universities of his choice and thus complete his degree requirement by being on the rolls of more than one selected university. The accumulated credit hours would earn him a final degree.

He said the method of distance learning "is becoming an effective teaching-learning process, which is based on a system of communication. The more effective the communication, the better will be the understanding."

He said that in Pakistan the Allama Iqbal Open University was playing an effective role in this field.

Dr Afzal said the method of teaching through correspondence had been mainly replaced by the media. With the advent of radio, television and newspaper, the media had become the most effective means of distance learning and were the mainstay of the systems prevalent in the open universities.

## Women's wing

He said this method had been fully exploited "in our country and we are waiting for a second channel on TV, devoted almost entirely to distance learning."

He said the Friday morning programme started on TV "is just a pre-

cursor of the shape of things to come." He said that once the university "is fully equipped with all the modern means of communication of its own, like the TV transmission and its own radio, it will play an important role in eliminating illiteracy in the country."

Dr Afzal said a plan was also under way to open a separate wing for women in the Open University for dealing specifically with the education of women in the country.

Earlier, Dr Ahmad Mohyuddin, Vice-Chancellor of the Allama Iqbal Open University, welcoming the Minister said that till April last the University had presented 64 courses in distance learning. He said that so far 172,022 students had benefited from these courses.

He said a plan, with the collaboration of the Ministry of Health and Social Welfare, "is under way for the education of the physically handicapped persons."

The Vice-Chancellor said the University was also opening an overseas cell for the education of overseas Pakistanis. The cell would start functioning by the end of this year.

Later the Federal Minister for Education conferred degrees on the passing students, besides giving away gold medals and certificates.

Dr Mohyuddin presented a crest of the university to the Federal Minister as a memento of the convocation — PPI

TELECOMMUNICATIONS COOPERATION WITH FRANCE EXPANDED

Paris ELECTRONIQUE ACTUALITES in French 20 May 83 pp 1, 7

[Article by DL]

[Text] Tunis--The inauguration of the first E-10 electronic exchanges in Tunisia, on 12 May, in the presence of the French and Tunisian PTT ministers, confirmed the desire of the two countries to expand and deepen their cooperation in telecommunications.

In fact, given the size of the market and Algeria's and Morocco's impending telephone exchange selections, Mr Mexandeau and his Tunisian counterpart, Mr Khouaja, mentioned the expansion of this cooperation to the entire Maghreb (North Africa): the idea would be to create, based on French technologies, a Maghreb industrial pivot covering several telecommunication sectors, notably in switching and transmission.

The E-10 exchanges installed in the cities of Sousse and Sfax in Tunisia, are part of a contract awarded by the Tunisian PTT to CIT-Alcatel.

This 120 million francs contract includes the supply of nine E-10 time-switching exchanges, four of them in the Sousse region, three in the Sfax zone, and two in the Gabes zone. Remote subscribers are linked to these exchanges through 34 satellite centers distributed in the three zones. In addition, each of the three zones is equipped with an exploitation and maintenance center. At first, this telecommunication network will service 60,000 subscribers, with the capacity being widely expandable to meet future requirements.

In parallel with this contract, the Tunisian PTT has notified an industrial consortium headed by CIT-Alcatel and including SAT, TRT, and Cables de Lyon, of the existence of a market of 75 million francs (in two contracts of 45 and 30 million) for digitalizing the transmission network of the city of Tunis and its suburbs, as well as of the cities of Sousse and Sfax, by means of 2 Mbit/s and 140 Mbit/s cable and radio-relays. The interurban transmission trunks between these various cities are provided by 140 Mbit/s cable systems, by 2x34 Mbit/s radio-relays, and by corresponding multiplexing equipment.

## Time-Switching Exchanges and Training

As we learned from Mr Ben Lakhal, director general for telecommunications, two major technical problems were facing the Tunisian PTT in 1980: difficult telephone traffic flow causing network congestion at peak hours, and a great need for subscriber connections (the demand represented one-half of the installed telephones, which amounted to 120,000 subscribers).

It was at that point that supported by the government's intention to triple telecommunications investments during the 1982-1986 Sixth Plan, the Tunisian PTT opted for electronics by launching an ambitious program of digital transmission and time-switching. For the latter, it selected the CIT-Alcatel's E-10 systems, and LM Ericsson's AXE (time-switching version), with each of the two manufacturers being awarded an order for about 60,000 lines.

The telephone equipment effort will remain sustained during the coming years, with an installation rate of 40,000-50,000 lines per year. Beginning this year, an additional expansion program of 120,000 lines will be negotiated by mutual agreement with the two companies so as to achieve a defined objective of 450,000 lines, 60 percent of which will be time-switched by 1986.

But the contract awarded to CIT-Alcatel was not limited to exchanges; it also included the creation of a training center for E-10 time-switching technology within the Tunis School for Telecommunications. This center, in operation since September 1981, has already graduated two classes of Tunisian technicians which will participate in the maintenance of the new Sousse, Sfax, and Gabes exchanges, and in the training of future technicians in Tunis. Mr Chavance, administrative director general of CIT-Alcatel, stressed this industrial contribution; mentioning the E-10 exchanges already installed in Morocco, and the discussions already underway with Algeria, he emphasized the idea of a telecommunications industry in Maghreb.

## A Complete Industry to Be Created

After having pointed out the importance of the French-Tunisian cooperation in telecommunications--in addition to the ongoing switching and transmission programs, several undersea links and an inter-ministerial network of exchanges have been built by the French industry--Mr Khouaja, secretary of state for PTT, explained the spirit that could be embodied in this idea of Maghreb industrialization: "the human element is available, the market is developing with a population that will reach 60 million by the end of the century, and the desire for cooperation among the three countries is undeniable. We are currently examining our 10-year needs aiming at the creation of a complete telecommunications industry: telephone exchanges, transmission, cables, telephone sets, and so on. Following a meeting of the three parties last April at the DGT (General Directorate for Telecommunications) level, we are planning another one in September, after Morocco and Algeria have selected their electronic switching systems. We will then be able to progress rapidly."

Among the possible plans, it would appear that in case of agreement, the industrial sharing could be organized around a modernized Algerian plant at Tlemcen--CIT-Alcaltel has already made proposals in this respect--which would become responsible for the production of a switching system, a Tunisian transmission plant, and a Moroccan unit for another type of equipment.

With a generally positive feeling about his two-day official visit in Tunisia, Mr Mexandeau was proud that the three sectors that involve the PTT rose to the occasion: in addition to the telephone exchanges, the minister inaugurated the test pattern of the second channel of Tunisian television (manufactured by Thomson), which is an essentially French language channel, and mentioned a mail sorting center that is being finished. Mr Mexandeau stressed the importance of a "true transfer of technology" and told us that the formation of a French industrial pivot in Maghreb "would allow a new advance of France's contribution in this region. It all fits within an excellent climate of cooperation with the Arab world."

11,023  
CSO: 5500/4616



TEK INDUSTRIAL PRODUCES PRINTED CIRCUITS

Johannesburg THE CITIZEN in English 6 Jun 83 p 23

[Text]

**SIXTY m' of professional printed circuit boards a day. That is one result of Tek Industrials' recent R3-million expansion programme at East London.**

PCB and other expansion projects over the past two years will be the theme of the Tek stand at this year's Componex exhibition at Milner Park from June 6-10.

Main object of the programme was to increase the company's PCB capacity by nearly 300 per cent, in anticipation of the coming upwelling for PCBs.

Tek Industrials see the bulk of this upwelling in telecommunications, particularly in the manufacture of fully electronic exchanges, and in the com-

puter industry, where electronic banking is the thing of the not too distant future.

Another result of the expansion: Tek Industrials is now South Africa's largest manufacturer of commercial PCBs and one of the major professional-PCB concerns.

At the centre of this important investment is one of the most modern German-made fully automatic plating plants, which is totally computer controlled.

The plating takes place in sealed environment, which prevents all contamination by dust and dirt, and allows accurate control of the sensitive process chemistry.

The plating plant was commissioned last November, and came into full production in January.

The problems of PCB manufacture, such as short circuits, open circuits, under etching, and hole breakout, have all been overcome at Tek Industrials.

Tek Industrials, whose products are marketed under the Sparrat label, originated in 1977, when the scope for local production of electronic components became sufficiently attractive.

The product range includes electrolytic capacitors, ballast foil capacitors, coils for radio and television manufacturers, loudspeakers, transformers, TV tuners, security systems, battery chargers, inverters, monitors, and, of course, professional and commercial single- and multi-layer printed circuit boards.

POWTECH SEEKS TO SATISFY LOCAL ELECTRONICS MARKET

Johannesburg BUSINESS TIMES in English 5 Jun 83 p 3

[Article by Elizabeth Rouse]

[Text] Power Technologies (Powtech) has been a feature in the electronics sector of the JSE this week with unusually high turnover in the shares.

Turnover reached 27 700 at midweek, which is more than double the daily average of 13 000 shares.

"Powtech is no longer a speculative share," says chief executive Ken Maud. "Institutional buying has been fairly strong."

The fact that the trading price range has been 95c-105c since the release of the excellent preliminary profit report on April 14 seems to point to orderly institutional buying.

But before the institutions start locking up the share, small investors might well take a look at Powtech as a long-term hold. There are not so many shares available.

Of the 41 069 444 ordinary shares in issue, Allied Technologies and one of its subsidiaries, Socross, hold just under 26-million, directors (including family interests) hold 517 300, while banks, assurance companies and pension funds hold just under 5-million. That leaves only 9,7-million, or 23 percent of the equity, in other hands.

Main reason for interest in Powertech is the soundness of its balance sheet, satisfactory order books and Mr Maud's belief in the group's "excellent" long-range prospects in the power electronics and electrical market.

"We still have a long way to go in a market dominated by the multinationals," says Mr Maud. The aim is to become a local manufacture giant.

But Powtech's highly motivated management will move only in carefully selected areas, he emphasises.

Power electronics and electricals are seen as a major growth area in the South African economy. The electrical segments of the economy are set to grow at an average annual rate of 7 percent until the turn of the decade, certainly a much faster growth than the country's GDP.

The emphasis in future years will switch to conservation of electrical energy and improved efficiency in the use of energy.

This is expected to create a substantial secondary market to innovative electronic control and measuring equipment of a highly sophisticated nature, Mr Maud said in his recently released annual report.

Powtech, by placing the emphasis on local manufacture, will have greater flexibility than the multinationals to satisfy local requirements.

However, continued and increased cooperation with technology partners overseas remains necessary to maintain a satisfactory input of foreign technology.

As far as more immediate objectives are concerned, Powtech enters the new financial year with satisfactory order books and prospects of a "dramatic" increase in orders in the latter half of the year.

The aim is to sharpen the group's competitive edge despite the economic slowdown, and to expand interests even further in the lighting and energy fields (the past year's acquisitions were Lascon, Willard and Lucas batteries) as well as into other sectors of its business--power electronics and control, and power distribution.

Powtech surpassed by far its financial objectives in the past year.

- ° Borrowings should be less than 50 percent of fixed capital. The actual at February 28 was 7,1 percent compared with 27,1 percent in 1982.

- ° Total liabilities should not be greater than 130 percent of fixed capital. The past year's total liabilities were R27,019-million, which was 93,7 percent of fixed capital, compared with 95,8 percent in 1982.

- ° A current ratio of 1,8:1 is aimed at. The past year's ratio was 1,8:1 against 1,9:1 in 1982.

- ° The liquidity ratio should be 1:1. The ratio has been static at 0,8:1 in the past two years.

- ° The goal for operating income as a percentage of sales is 15 percent. The actual for the past year was 13,6 percent.

CSO: 5500/170

## BRIEFS

**COMPUTER SYSTEM**--Computer consultancy, Comcon, is set to break into the export market for its locally-developed method of planning and implementing a computerisation strategy, called ADM. Chairman Pierre Biebuyck and another director, Mr Stan Wulf, have just returned from overseas where, says Mr Biebuyck, sales of ADM are possible to 600 sites in the next three years. An as yet unnamed subsidiary will be formed to handle exports, and will be headed up by Mr Wulf. He says he expects to have the ADM ready for export and distribution arrangements completed by August. "ADM gives senior management a long-term management information systems strategy and the appropriate technical plan to turn it into reality," he says. "It ties together all the different components such as traditional computing, networking, information centres, decision support systems, personal computing and the automated office." Because ADM links capacity planning and systems development, it is possible to predict exactly what the overall system's performance will be. ADM will also predict the effect of new systems on existing ones, thus allowing managers to plan ahead. [Text] [Johannesburg THE STAR in English 8 Jun 83 p 15M]

**COMPUTERIZED TAPE-RECORDERS**--A R-2-Million Government contract to produce sophisticated, computerised tape-recorders has been awarded to Spescom, a wholly owned South African electronics company. The design was created by Spescom and is believed to be a first for the local electronics industry. "We know of no other recorder of any kind which has been designed locally," says Tony Farah, managing director of the company. "It is unique in the world, making full use of the latest technology." The unit is a two or four track communications recorder with application in all areas where reliable and constant records are required. It will have application in airport traffic control, mining and other industries. [Text] [Johannesburg BUSINESS TIMES in English 29 May 83 p 11]

CSO: 5500/170

## BRIEFS

NEWLY INSTALLED MICROWAVE SYSTEM--Dar es Salaam, 27 June (AFP)--Tanzanian postal engineers are reportedly testing a newly-installed microwave system which is part of the east-west portion of the Pan-African Telecommunication (PANAFTEL) link. The system, covering Tanzania's six regions south of Lake Victoria, will provide an important link with international circuits which will eventually be extended to Western Africa. A statement issued here over the weekend by the Tanzania Posts and Telecommunications Corporation (PTTC) said the installation of indoor and outdoor equipment, including antenna systems, have already been completed and the testing of the equipment was presently being carried out by its engineers. Internally, the newly-installed PANAFTEL system will provide telephone and telex links between Dodoma, Singida, Tabora, Shinyanga and Mwanza regions, south of Lake Victoria. Some of these regions were previously only accessible through a radio call system. [Text] [PA271854 Paris AFP in English 1839 GMT 27 Jun 83]

CSO: 5500/171

## BRIEFS

MICROWAVE RELAY CONSTRUCTION—The 16.5 million Kwacha microwave radio relay lead under construction in the Northwestern Province will be taken over by the Southern African Development Coordinating Conference, SADCC. The Norwegian Agency for International Development, NORAD, resident representative, (Hasen Forenchen) said in Lusaka today that NORAD and the Zambian Government have been discussing the transfer of the project to SADCC. When the project is transferred to SADCC, it will be financed from funds set aside for SADCC projects by the Norwegian Government. The said funds earmarked for the project when taken over by SADCC may be diverted to other projects to be proposed by the Zambian Government. [Text]  
[MB150711 Lusaka Domestic Service in English 1800 GMT 14 Jun 83]

CSO: 5500/165

# 1981-82 ACHIEVEMENTS IN RADIO, TV BROADCASTING

Moscow VESTNIK SVYAZI in Russian No 4, Apr 83 pp 2-5

[Article by Ye.Ye. Dobrovol'skiy, Deputy Chief, Chief Directorate of Space and Radio Communications]

[Text] On Radio Day, which has become a holiday for all of the country's communicators, the large detachment of radio broadcast, wired radio, television, space and radio communications workers summarizes the results of its work and, on the basis of strengthened discipline and improved organization and efficiency, mobilizes new reserves to carry out the resolutions of the 26th CPSU Congress and the November (1982) Plenary Session of the CPSU Central Committee.

The network of radio broadcast stations operating in the long, medium, short and meter wavebands which now exist in the Soviet Union is the world's largest in terms of area covered, as well as the most powerful in terms of technical facilities in use. Radio broadcasting coverage now extends throughout the country; every Soviet family has a radio receiver or wired radio outlet.

There are now five national central broadcast programs employing all of the radio wavebands in an integrated fashion.

Since 20 October 1980, i.e., for more than 2 years of the 11th Five-Year Plan the first national radio program -- the primary social-political and artistic program -- has been broadcast in five zones, allowing the population of the Soviet Union to receive it everywhere at convenient local times. Each copy of the program runs for an average of 20 hours daily. It has only been possible to accomplish this important social-political task by making integrated use of terrestrial and satellite communications facilities.

"Mayak", the second national radio program, which covers more than 80% of the country, is on the air 24 hours daily. In order to provide round the clock broadcasting, to expand the reception area and to improve sound quality a series of broadcast stations operating in the medium- and



meter wavebands were singled out during 1981-82.

The 11th Five-Year Plan includes a task to provide five-zone broadcasting of the third national radio program -- the important general educational and literary-musical program which is transmitted 17 hours daily. Until 1982, this program was broadcast only in Moscow time, with no division in the zones, and was provided mainly in the European portion of the USSR. Beginning on 1 April 1982 technical facilities were allocated and zone broadcasting was implemented for Western Siberia with a four-hour time shift with respect to Moscow time; starting on 1 October 1983 zone broadcasting will be implemented for regions of the Urals and Central Asia with a two-hour time shift with respect to Moscow. Three-zone broadcasting of the third national radio program will thus be implemented by 1983.

Powerful new radio broadcast stations were brought on line during 1981-82. Substantial work was done to update and increase the power of a number of existing long-wave, medium-wave and short-wave stations and their antenna structures. This made it possible to expand the broadcast zones and to improve sound quality for a number of central broadcast programs in various regions of the country.

Local radio broadcasting in the USSR is now being done in 69 national languages of the peoples of our country. This is being done in all of the broadcast bands through numerous radio broadcast stations serving the republics, krais and oblasts; the union republics also have two or three regional radio broadcast programs. During 1981-82 local radio broadcasting was strengthened by bringing new medium-wave transmitters and new meter-wave two-program radio broadcast stations on line in a number of regions around the country.

In order to improve the audibility of medium- and long-wave radio broadcast transmissions, as well as to expand the program broadcast zones, the introduction of synchronous broadcast networks in these bands is continuing during the 11th Five-Year Plan. As is well known, with this broadcasting method transmitting networks are set up which consist of a series of radio broadcast stations operating synchronously at the same frequency and carrying the same program. These networks make it possible to create high ground-wave electromagnetic field intensities (10-20 mV/m), which is particularly important for high quality reception of broadcasts when the interference level is high in large and medium cities.

Forty synchronous broadcast networks incorporating about 200 radio broadcasting stations, to which 34 new ones were added during 1981-82, are now in operation in the USSR. The real economic effectiveness of this broadcasting method is extremely high, since the program broadcast zones are expanded significantly with insignificant additional expenditures for synchronization equipment without increasing the number of frequency channels utilized.

The network of frequency modulated (FM) meter-band radio broadcast stations will continue to be developed during the 11th Five-Year Plan. The use of frequency modulation increases noise tolerance significantly. The meter waveband provides high capacity and has a low level of atmospheric and man-made interference; therefore, this band can carry a wide audio frequency band without distortion (from 30-15,000 Hz), making it possible to provide high quality audio for radio broadcast programs.

New "Dozhd'-2" FM meter-band two-program stations were put into operation at more than 20 locations around the country during 1981-82.

Meter band FM stations have now been established in 480 large and medium cities, providing high quality two-program broadcasting, as well as three- and four program service in many locations, in the meter waveband with frequency modulation for cities and surrounding rural regions.

The plants of the USSR Ministry of the Communications Facilities Industry, as well as the USSR Ministry of the Radio Industry, are increasing the production of stationary, and especially of portable, radio receivers operating in the meter waveband, which should result in an even greater increase in the role of high quality FM meter band broadcasting in the country.

Another valuable aspect of the monophonic meter band FM broadcasting network is the fact that with some modernization it can also be used to transmit stereophonic programs.

Local stereo broadcasting is provided in 42 cities around the country.

It should be noted that the rate at which stereophonic broadcasting is being implemented around the country is being retarded because of the unsatisfactory discipline on the part of the Ministry of Railroads in delivering the required stereo equipment to the enterprises of the USSR Ministry of Communications during 1981-82: this includes the ARS-1 stereo signal formation racks and the meter-wave FM drivers for the "Dozhd'-2" broadcast transmitters.

A model of the automated "Dozhd'-4" four-program meter-band FM radio broadcast station, which operates in the 66-73 MHz band with 4 kW per program and designed for FM monophonic and stereophonic broadcasting, will undergo experimental operation in 1983.

Each of the four program transmitters incorporates a driver which provides a 10-kHz frequency spectrum on the basis of a digital synthesizer, a wideband 80 W transistor pre-amplifier and a final stage with GU-73b tubes employing an echo-suppression circuit which adds the power produced by two identical half-sets. The driver circuit and pre-amplifier have 100% unloaded reserve.

The first and third transmitters output stereo programs. The audio frequency signals of channels a and b for stereophonic programs I and III are converted to a complex stereo signal in the stereo broadcast rack modulators. The stereo modulators are 100% redundant. All operations involved in switching over to the reserve, in powering up, testing and providing protection are done automatically.

Plans call for putting the "Dozhd'-4" radio stations into operation at the end of the 11th Five-Year Plan.

The USSR has developed the world's largest and most extensively branching wired-radio broadcasting network -- a system of technical radio facilities which facilitate reception and amplification of broadcast programs and their distribution to subscriber devices with the help of a wire network. Wired radio is as important a variety of Soviet broadcasting as is radio; these two supplement one another, and make up the national unified broadcast network.

All cities in the Soviet Union, as well as the overwhelming majority of populated rural areas, are now provided with wired-radio broadcasting. Wire broadcasting has now become one of the types of domestic services provided in every apartment. Since a huge amount of residential construction is underway in this country, the number of wired-radio outlets in the country has increased by 3.5 million per year, in spite of the simultaneous fast growth in the pool of radio receivers.

About 1000 populated areas had wired radio outlets installed during 1981-82. The increase in the number of wired radio outlets during these two years totaled 7.5 million.

The main direction in the development and improvement of wire broadcasting is the acceleration of the switch over to a multi-program broadcasting system. This is a major social-political task, since multi-program broadcasting will be provided in rural areas as well as cities.

The wired-radio broadcasting subbranch is a labor-intensive one. One important problem in improving the main efficiency indicators -- labor productivity -- is to convert numerous rural wired-radio centers to remote-controlled and automated systems.

During the first two years of the 11th Five-Year Plan this work has been completed at 1800 rural wired-radio centers, making it possible to eliminate 1500 maintenance workers and increasing the operating reliability of the centers as well as expanding their operating time to 17-18 hours daily.

In order to improve labor productivity within the subbranch, research is underway on the possibility of reducing the amount of wire-broadcast line structures in rural areas by improving network structure, as well as developing new equipment to provide the capability of feeding multi-program broadcasting over the rayon center -- central farm section.

The use of new transmitting and amplifying equipment will make it possible to transmit radio programs over rural telephone systems at low levels, and eliminate the rural construction of main and distribution feeders.

In 1981 Soviet communicators marked the 50th anniversary of television broadcasting in this country, which has covered a long road extending from mechanical to electronic television. The television network in this country is the world's largest and most widely branching. If this network employed only terrestrial facilities up to 1967, the television network in the USSR has now made extensive use for the past 15 years of a series of systems for distributing television programs employing earth satellites as relays.

The television network of the Soviet Union now has 120 television centers; almost 5,000 television transmission stations; hundreds of thousands of kilometers of long-distance television channels carried over radio relay and coaxial cable links; the "Orbita", "Ekran" and "Moskva" satellite program distribution systems, including as many as 100 "Orbita" receiving stations, about 1900 "Ekran" transceiving stations and 90 "Moskva" stations.

These technical facilities have made it possible to set up Central television program transmission in such remote cities as Magadan, Yakutsk, Anadyr' and Petropavlovsk-Kamchatskiy, among others, as well as in the very smallest populated areas such as the mountain villages in the Gorno-Badakhshanskaya oblast in the Tagik SSR, a number of oblasts in the Kirgiz SSR and in the Dagestan ASSR, in villages in Tuymen' oblast and other oblasts along the international Urengoy-Uzhgorod gas pipeline now under construction.

More than 89% of the population of the USSR can now receive one television program, and more than 69% can receive two programs.

The greatest achievements in providing television broadcasting for the population have been attained in the Armenian, Moldavian, Belorussian, Estonian, Azerbaijan, Ukrainian and Lithuanian union republics. There are now more than 85 million television sets in the country, about 9 million of which are color sets. Practically every Soviet family living in zones in which television programming can be received own a television set.

Like radio broadcasting, central television broadcasting of the first program switched over to five-zone broadcasting on 20 October 1980, which was made possible through the extensive integrated utilization of terrestrial and satellite television broadcast facilities; during the 11th Five-Year Plan television viewers have acquired the capability of watching this primary national social-political and artistic informational program throughout the country for up to 15 hours daily at convenient local times.

The resolutions of the 26th CPSU Congress contain provisions for the introduction of a second national cultural-educational and artistic television program, which is also to cover five zones, during the 11th Five-Year Plan. The significant amount of work done by the communicators to develop the technical base for television broadcasting made it possible to set up three-zone broadcasting of the second television program as of 1 January 1982; this program is now being transmitted with allowance for local time for residents in the European part of the country, the Urals, Western Siberia and the republics in Central Asia.

In 1983 radio workers are faced with the task of setting up four-zone broadcasting of this central program, i.e., television broadcasts are also to be set up for Western Siberia.

Substantial organizational and technical measures are now underway to prepare terrestrial and satellite television broadcast facilities to fulfill this important mission during the second half of 1983.

It should also be noted that tasks involved in the continued introduction of color television were also carried out during the first two years of the 11th Five-Year Plan. All powerful television transmitters, as well as the majority of low-power relays, now provide color program transmission.

Powerful new television stations are now under construction in a number of cities. Construction is nearing completion on a powerful television transmitting station with a 360-meter antenna tower in Alma-Ata, the capital of Kazakhstan. This station will provide five television programs and four FM radio programs in the meter band. Plans call for start-up in 1983.

Construction is continuing in Riga, the capital of the Latvian SSR, on a powerful television station with a 360-meter antenna tower. Plans call for four television programs and six FM meter-band radio programs. This facility is to go into operation in 1985.

During 1981-82 27 powerful television stations were put into operation around the country.



The resolutions of the 26th CPSU Congress require more extensive utilization of satellites to set up multi-program television broadcasting during the 11th Five-Year Plan. Deserving of primary mention are the achievements in implementing the "Ekran" satellite television broadcasting system, carrying a 200-watt on-board transmitter -- the most powerful in the world -- providing transmission of central television programs in color in the 0.7 GHz band over a network of simplified transceiving television stations deployed in populated areas in Siberia, Kazakhstan and the Far North.

This system covers about 40% of the country. Considering the fact that terrestrial television facilities also operate in the 0.7 GHz band, frequency modulation is employed in the "Ekran" satellite system in order to ensure electromagnetic compatibility; the zone served is located so as to create sufficient spatial selectivity conditions and to meet the standards for interference field intensity within the territories of other states while providing sufficiently high power flux density within the zone served.

A series of modifications of these stations, which can be called the "Ekran-KR" series, has already been developed; this has lighted up the screens of television sets in thousands of villages in Siberia, Kazakhstan and the Far North. The "Ekran-KR" stations receive FM TV broadcast signals from the "Statsionar T" satellite, which is located over the equator at 99° west longitude, converts them to standard AM television signals which are amplified to a power of 1 W and sent out by the transmitting antenna over one of the 12 channels in the meter band. The operating radius of the station transmitter is 2-3 km.

The "Ekran-KR" station does not require full-time attendance: the station receiver is turned on and off remotely from distances of up to 5 km; the transmitter is turned on and off automatically when a signal from the satellite appears. The station employs high-efficiency stabilizers which allow it to operate over a wide range of line voltage fluctuations (from 165 to 250 V) without degradation of performance indicators; when the voltage exceeds 250 V the station automatically shuts down.

This station includes the following devices: a receiving antenna, a transmitting antenna (horizontally or vertically polarized), a transceiver, a remote control console; two lightning protection devices and a TV monitor. The receiving antenna is a phased array consisting of four "wave channel" sheets which are arranged in two stages, each with two sheets, and has low wind loading. The receiving antenna provides 21 dB gain.

The second modification -- the "Ekran-KR-1" -- performs the same functions and has the same operating radius as the "Ekran-KR"; however, several of its parameters have been improved significantly. The noise temperature has been reduced and the sensitivity of the receiver increased by using a parametric input amplifier. The transmitter includes a carrier-frequency

shift heterodyne which employs a frequency synthesizer circuit and shifts the transmitter carrier by an amount which is a multiple of 1/12 of the line scanning frequency, which makes it possible to reduce significantly the spatial separation of stations using the same and adjacent channels. The linearity of the amplification circuit of the transmitter has been improved. The dimensions of the transceiver have been reduced by 30% as compared with the "Ekran-KR" station.

The next modification -- the "Ekran-KR-10" -- is a more powerful "Ekran-KR-1" station. This station incorporates an additional 10-watt amplifier. Increasing the power increases the operating range of the station to 5-7 km, making it possible to provide television broadcasting for larger villages.

The "Ekran-KRP" modification is an "Ekran-KR-1" with 100% reserve and with a series of devices which expand its functional capabilities. Besides the standard AM television signal, the station outputs low-frequency video and audio signals. The station also outputs radio program signals.

This station incorporates a TV signal demodulation unit and a test line select unit, which allows transmission quality to be evaluated while on the air.

More extensive use will be made of the technical facilities of the "Moskva" television program distribution system, which operates over a special trunk carried on the new "Gorizont" series multi-trunk communications satellite. The power of the on-board transmitter operating over this trunk has been increased to 40 W; the transmitter operates through a directional antenna which corresponds to the broadcast zone served. The high signal power flux density on the ground, which still satisfied CCIR requirements, has made it possible for the "Moskva" receiving ground station to employ an antenna with a small dish -- 2.5 meters, and to employ an uncooled low-noise parametric amplifier as the input device. The "Moskva" system can be used to set up one television channel with high video quality, an audio channel and an audio broadcast channel. The low-frequency TV video and audio signals output by the "Moskva" receiving station are input to a television transmitting station whose power depends upon the required service zone. The "Moskva" system can also be used to feed radio broadcast programs and newspaper columns; the "Moskva" station can be set up in this case in the immediate vicinity of the printing facility. In contrast to the "Ekran" system, the "Moskva" can be used in any region of the country.

During 1983-85 the "Moskva" system will be expanded further, especially in regions of the Far North, the Far East, Western Siberia and individual regions of the European portion of the USSR.



The near future holds the development and introduction of new multi-channel satellite television systems operating in the 12 GHz band. According to the Radio Communications Regulations, the radio broadcast satellite service is authorized to create a high power flux density on the ground in this band.

The new 12 GHz systems will open up major possibilities for increasing national, as well as republic and oblast multi-program television broadcasting.

During 1981-82 the capabilities of satellite communications systems for telephone-telegraph communications, newspaper column transmission and radio broadcast transmission were expanded significantly. The satellite telephone communications network has now reached several millions of channel-kilometers.

The Soviet Union is an active participant in international cooperation in the area of satellite communications. The international communications satellite system (MSSS) founded by the socialist countries and having "Intersputnik" as its international organization, is developing successfully; this organization is leasing the Soviet "Gorizont" geostationary communications satellites. With the help of "Intersputnik" hundreds of one-way and multilateral transmissions of color television programs have been achieved during the first years of the 11th Five-Year Plan; reports on important political, cultural, sports and other important events in the life of the peoples of various countries have also been transmitted. The "Intersputnik" system also satisfies requirements for international exchange of radio broadcasting.

Work on installing AURK radio channel multiplexing equipment on main radio links was done during 1981-82. This device is used to multiplex a single sideband telephone channel with six 200-baud telegraph channels.

Operational testing was done in 1982 on models of the new AURK-2 radio channel multiplexing equipment which will be installed on shortwave main radio communications links at the end of the 11th Five-Year Plan. The new AURK-2 equipment is based on integrated microcircuits and can transmit telegraph data over six 200-baud channels, or can transmit continuous data at 600 or 1200 baud.

New types of 20 kW "Molniya-3" automated single sideband transmitters have begun to be put into operation at transmitting centers. The "Molniya-3" transmitter employs an advanced single-ended circuit, covers the complete shortwave band from 3 to 30 MHz, is equipped with a high-stability exciter and can be set to any frequency within the band automatically.

ADU-2 remote control and remote signaling equipment has begun to be put into permanent operation at transmitting and receiving centers. This

equipment allows groups of ten automated mainline transmitters or receivers to be controlled remotely. The implementation of this equipment at a number of radio enterprises has made it possible to eliminate several dozen operational duty personnel.

Based on improved organization and efficiency in their work, and having expanded socialist competition, radio enterprise workers will apply every effort and will achieve new successes in fulfilling the intensive assignments of the 11th Five-Year Plan with regard to the development and improvement of television, radio broadcasting, wired-radio, space and radio communications facilities.

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## INTERNATIONAL SOCIALIST COOPERATION IN WIRED RADIO BROADCAST ENGINEERING

Moscow VESTNIK SVYAZI in Russian No 4, Apr 83 pp 9-10

[Article by I.A. Shamshin, Chief Engineer, Moscow City Radio Relay Network]

[Text] Scientific and technical cooperation among socialist countries is becoming increasingly important. The Moscow City Radio Relay Network (MCRN) has for many years cooperated with the Prague Electrical Communications Directorate of the Czechoslovakian SSR Federal Ministry of Communications, with enterprises of the GDR Ministry of Communications Studiotekhnika, with "Tesla-Wrable" of the Czechoslovakian SSR Ministry of the Electrotechnical Industry and with Ulan-Bator communications enterprises of the Ministry of Communications of the Mongolian Peoples' Republic. The foundation has been laid for cooperation with enterprises of the Cuban and Afganistan communications ministries. All of this work is based primarily on an exchange of specialists: it is mutually profitable and is rigorously planned as a composite part of the scientific-technical cooperation plans of the communications ministries of these countries and the USSR Ministry of Communications.

The more than 10 years' experience with cooperation between the MCRN and the Prague Directorate of Electrical Communications has made it possible to set up an experimental three-program wired-broadcast region in Prague; to implement various Soviet-produced wired-broadcast equipment; to improve a number of processes involved in testing and measuring wired-broadcast circuits; to introduce advanced technical and organizational standards, as well as a number of other items. As a result of this cooperation, the Soviet side has been able to make important adjustments in the technical operating standards in force in the MCRN, especially those concerning labor consumption and production organizations. It has also employed certain technical decisions from the Czechoslovak side in the area of synchronous speech translation technology and audio technology. The construction principles of powerful amplifiers and combination of their power when working into a common load are being developed jointly, in addition to the construction principles of truck-mounted audio amplifying stations, aspects of optimizing the construction of wired-broadcast networks and the

selection of network device constructions, etc. The current five-year plan contains provisions for the joint development by the Prague directorate of electrical communications and the MCRN of technical treatments for the construction of audio amplifying stations for buses and motor vehicles with special bodies.

The cooperation between MCRN and "Tesla-Wrable" is especially effective. The "Tesla-Wrable" enterprise has increased its list of products, and has mastered a new direction in wired-broadcast engineering.

The Soviet side, in turn, is obtaining wired-broadcast equipment. The process of investigating and finding optimal technical treatments and design developments, coordinating decisions made and technical specifications between the sides, and manufacturing and testing in conjunction with MCRN of equipment models proceeded rapidly and smoothly, without excess formality, on the basis of thorough mutual understanding. One specific result of the scientific-technical cooperation between MCRN and the "Tesla-Wrable" enterprise was the appearance of large numbers of 100 W, 100x10 W, 500 W and 500x5 W transistor amplifiers in the USSR wired-broadcast system. Delivery of the automated "Rayuzla" equipment to the USSR for the Central control and monitoring station and substations will soon begin. This system makes it possible to solve many of the problems of wired broadcast development in rural areas of the USSR, which will promote the successful implementation of the Food Program.

The many years of cooperation between the MCRN and the Prague Directorate of Electrical Communications of the Czechoslovakian SSR Federal Ministry of Communications has led us to cooperate with Czechoslovak industrial enterprises. For example, the "Rayuzla" system was developed at the "Tesla-Wrable" enterprise for the Czechoslovakian SSR, while the MCRN did work to adapt it for the conditions of wire broadcasting in this country. Our national wire broadcast system will soon obtain automated 1 kW and 2.5 kW transistor amplifiers, wire broadcast testing and measurement equipment, etc., from industry in the Czechoslovak SSR.

This experience with international cooperation among industrial and operating enterprises has yielded great results, which could be used successfully to solve another specific task of the wire broadcast subbranch -- the partial introduction of multi-program-stereophonic wire broadcasting over telephone networks in the USSR. This broadcasting method is in use in a number of countries. It has begun to be introduced in Bulgaria, and the young Bulgarian radiotechnical industry is doing appropriate work in this area in conjunction with the Ministry of Communications of the Peoples Republic of Bulgaria. It is natural to ask why we are not doing this work in conjunction with them. We need large amounts of equipment for the receiving section of the circuit (loudspeakers and filters), which Bulgarian industry has begun to produce for the needs of the Peoples Republic of Bulgaria. I feel that cooperation

in this case between the MCRN and the Scientific Research Institute for Radio, the Central Scientific-Research Institute of Communications and the Central Design Bureau could be helpful.

Cooperating with the Studiotekhnika enterprise of the GDR Ministry of Communications, the MCRN set standards for the parameters of audio equipment (microphones, loudspeakers, amplifiers, etc.), optimized construction schemes for simultaneous speech translation systems, analyzed various methods for compressing the speech signal, as well as a number of other projects. It should be noted that both sides gained a great deal of experience in operating audio equipment and, given sufficiently qualified specialists, could expand significantly the scope of cooperation in the near future.

Cooperation between the MCRN and Ulan-Bator communicators involved both wire broadcasting and audio engineering problems. As the result of exchanging specialists and consultation, the Sukag-Bator public address system in Ulan-Bator was improved, and the transmission of broadcast programs to suburban Ulan-Bator was set up.

Cooperation with Cuban communicators has made it possible to improve the Jose-Marti public address system in Havana and to work out a number of issues involved in the possible introduction of wire broadcasting in Cuba.

Strong friendly relations have been developed as the result of the scientific and technical cooperation between the MCRN and teams of communicators and industry of a number of socialist countries. For example, teams from the MCRN and the Prague Directorate of Electrical Communications renew annual agreements regarding socialist competition and exchange working crews to work jointly at MCRN facilities and on the Prague wired radio network. The facilities which results are transferred to the World Fund. The MCRN has reached such agreements with the "Tesla-Wrable" enterprise and with Studiotekhnika (GDR). Groups of workers from the Prague Directorate of Electrical Communications and the "Tesla-Wrable" enterprise have visited the MCRN on vacation, and MCRN workers have vacationed with the "Tesla-Wrable" team. A particularly great deal of attention is devoted to this by the management of the Central Committees of the Communications Workers' Professional Unions and the ministries of communications of the USSR and the Czechoslovakian SSR. Experience with cooperation between MCRN and "Tesla-Wrable" indicates that cooperation must be practiced more broadly among operating enterprises, ministries and departments, as well as between the latter and industry.

It is very important that work on scientific and technical cooperation be planned correctly and in a timely fashion and that enterprises which are

producing results in a given order communicate more boldly directly on the scientific-technical plane as well as the plane of professional union activity of their production and scientific collectives. Both of these directions complement one another and are vitally necessary. The MCRN displayed the results of the cooperation with Czechoslovakian enterprises at the major exhibition of international cooperation of professional unions set up by the exhibition of the achievements of the national economy of the USSR for the 17th Congress of Professional Unions of the USSR, for which the MCRN was awarded a Certificate.

The workers of the MCRN and the Prague Directorate of Electrical Communications and Studiotekhnika worked successfully, for example, at the international festivals of youth in Berlin, in Havana and at a number of other major international fora. All of this is internationalism in the sense that it is contributed to by communist and workers' parties and by all socialist countries. It is recognized that the modest contribution of the MCRN is included here.

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# FIRST PRIVATELY FUNDED TELEVISION STATION INAUGURATED

Copenhagen BERLINGSKE TIDENDE in Danish 7 Jun 83 p 3

[Article by Kim Bretov Jakobsen: "Channel 77 Established With a Million Kroner"]

[Text] Channel 77, a joint-stock company with small-denomination shares which is to serve as an independent second purveyor of television programs, was inaugurated yesterday at a general meeting in Copenhagen. A good 300 shareholders there elected to vote for the founding group's 9 candidates (out of a total of 10) for the board of directors, which thus will be signed for in the future by the author Elsa Gress and the former head of TV-A, Hans Morten Rubin, among others.

The company has just rounded off a million kroner in share capital, thereby obtaining an amount that is twice as large as was necessary to start the company.

The million kroner were obtained the other day, when Frode Thule Jensen, of Copenhagen, invested 200 kroner in what he hopes one day will become a worthy alternative to Denmark's sole TV channel--but also an alternative to the many satellite transmissions from abroad which will loom up on the Danish TV screens in the near future.

Frode Thule Jensen is from Horsens, but he has lived in Copenhagen since September, when he started as a student of agronomy at the Agricultural College. He has been accustomed to watching German television at home, and therefore he understands what advertising on television is like for the viewers.

"As long as the advertising comes in blocks lasting 6 or 7 minutes 5 or 6 times a day, it is acceptable. I have been amused at the German TV advertising many times," he says.

In Copenhagen, Frode Jensen does not have his own TV set--or rather he didn't have one. He was a bit surprised when people from Channel 77's founding group presented him with a television from Sanyo out of gratitude for his contribution to the 1 million kroner.



Frode Jensen says he did not invest in shares in Channel 77 to get influence over television in that way. "I am against interest groups influencing the media, but I hope, instead, that I can get my wishes satisfied as a viewer," he says.

"I would like to have a chance to choose. I would like to be able to turn off 'Spiritual Forum' and switch over to a second TV channel with entertainment--a TV program that is not forced to consider the wishes of all minorities, as is the case with Denmark's Radio," Jensen says.

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## SIEMENS' POSITION IN EDP, TELECOMMUNICATIONS

### Organizational, Technical Problems

Duesseldorf WIRTSCHAFTSWOCHE in German 3 Jun 83 pp 56-63

[Text] Siemens chairman of the board Karlheinz Kaske has succeeded in short order in calling a halt to the low earnings which had plagued the firm for several years. Now he must see to it that Siemens does not fall behind on the world market in such future applications as communications and data technology as well as electronic components.

His grandfather was employed at the cable works and his father spent 40 years there. And now, in 1983, Heinz Kabus himself can look back on 50 years of work at the Cable Works I in Berlin-Gartenfelde. It is something of a German family history such as could perhaps only happen at the most German of industrial firms—at Siemens AG, the leading German electrical concern. But while Kabus' forebears worked at their jobs in times of steady growth and he himself traveled the length and breadth of Germany as the firm's chief of personnel to look for workers willing to move to Berlin, a turnaround is taking place in the early eighties. The days of steadily growing workforces are a thing of the past. And growth which helped the 136 year-old firm attain a world-wide reputation is no longer a matter of course.

Siemens, one of the largest German industrial firms with DM 40 billion in sales, must now lay its plans for the future. The firm has just gone through several years of low earnings. It was not until the business year just past that things turned around somewhat. And, as a long-time producer of electrical equipment, the firm must now try to meet the demands of the electronic age.

For all that, Siemens still represents an exception to the rule. Compared to other electrical firms or to the comparable construction industry, Siemens is still doing rather well.

The electrical firm which was ranked second for many years and has as much of a tradition as Siemens—namely AEG-Telefunken AG—is only one-third as big and, what is more, a bailout case. It has since been passed by the Robert Bosch Ltd which grossed DM 14 billion.

In world market terms, Siemens is right among the biggest in the field—far behind IBM and General Electric of course but slightly ahead of Philips, ITT and Hitachi. But none of the firms offers as many products as Siemens—a total of 250,000 ranging from light bulbs to nuclear power plants; from computers to telephones; from washing machines to sophisticated X-ray equipment.

Siemens has a world reputation in major fields such as energy and automation technology as well as communications technology which together make up half the company's sales. In spite of the heated debate on acid rain to which coal-fueled power plants contribute and on nuclear reactors, Siemens subsidiary Kraftwerk Union AG (KWU) is doing well. Last year, KWU grossed DM 4.8 billion; orders worth DM 20 billion are still waiting to be delivered.

Siemens medical technology grossed DM 3.5 billion and is one of the leaders on the world market. At first glance, only two sectors are in trouble and they are comparatively small in terms of sales: data technology and components. This is evidenced by more than merely the DM 4 billion in sales which means that the two sectors are losing money. The real problem is that these two departments must come up with technologies for the future which will keep the other sectors of the firm going.

The global economic crisis of the past several years uncovered some weak spots as even as huge a concern as Siemens. The low point thus far was reached in the 1980/81 business year when a mere DM 509 million in profits were obtained from sales totaling DM 35 billion—which comes to DM 1.50 in profits for every DM 100 in sales. In 1975/76, profits from sales still amounted to 2.9 percent.

Under the almost 2½ years of leadership of the new Siemens chief Karlheinz Kaske this trend has been reversed somewhat. Profits from sales have since almost come back up to 2 percent again. Kaske has cut overhead costs and also substantially reduced inventories and stocks.

The management experts are at work all through the Siemens concern. In 1980, employees worldwide numbered 344,000. By the end of March of this year, almost 40,000 had lost their job, most of them in Germany.

Siemens had a world reputation as a model industrial firm. That is no longer. Gone are the pioneering days of Werner Siemens who joined with engineer Georg Halske in 1847 to found the telegraph construction company of Siemens and Halske and build a pointer telegraph which was the forerunner of the teletype machine. It is also part of history that Siemens invented the dynamo principle and that the firm built the 11,000-kilometer telegraph

line linking London and Calcutta in the 1870's and the time when the first piece of X-ray equipment was built. The firm also made history in stone by building entire cities for its employees to live in as German industry expanded and Siemens grew along with it. One need only recall the borough of Siemensstadt in Berlin built in the early part of this century.

These days, caution is the watchword at Siemens. Last year's DM 738 million surplus includes a positive interest balance of DM 468 million—which is not much of an achievement considering the fact that Siemens amassed a cash reserve of DM 11 billion over the years. Although it proves that Siemens is a wealthy company, it does leave one with the impression that the firm cannot think of ways to invest its billions. But when people call Siemens a bank with a number of affiliated electric companies, the firm's financial head Heribald Naerger is not amused. "No one ever died of an overdose of money," he says. Professional analysts at the banks and elsewhere see it much the same way. "As a financially sound company, Siemens should succeed in mastering the problems of the eighties," concludes the German Investment Consulting Co, a subsidiary of Deutsche Bank AG.

There is a lot that speaks for this assessment. Siemens invests a healthy 10 percent of its annual gross earnings in R & D. The firm has a sales and production organization in 123 countries worldwide and more than half of all sales are made outside the FRG. "A multitude of products and the broad geographic distribution of our sales organization contribute to stability and better-than-average growth," a Siemens information leaflet addressed to stockholders says proudly.

Other industrial firms may be more than satisfied to list 20 percent of their own capital on their balance sheet; the corresponding Siemens figure is 28 percent. To secure the favorable capital rate, capital is even being increased—which should add another DM 200 million to the company coffers. Traditionally, the stockholders would then receive the same dividend on the increased capital. For another thing, business is picking up again and the stock market rate—which always preceded higher profits in the past—points toward just that.

Siemens has been saying as much for some time now. "Half of our turnover comes from products, systems and software which did not even exist in this form 5 years ago," Kaske is in the habit of telling those who have their doubts about Siemens.

On the other hand, however, it is worth noting that the percentage share in total turnover of the six company departments and the two subsidiaries (EWU and Oerem Ltd) has changed hardly at all over the past 10 years and not at all over the past 6—and this despite a change in markets.

As it happens, it cannot be excluded that half the products described as new and of which Siemens management is so proud may turn into a real problem for Siemens in the years ahead. The fact is that half the firm's business today is based on equipment using electronic technology. But the truth is that Siemens does not cut too good a figure in this field. The

components and data processing divisions of the company which are concerned with nothing but basic electronic technology—either for the purpose of supplying them to the four other divisions or to market them directly—are nothing to brag about; in fact, they are incurring open-ended losses. The Siemens successors and heirs will have a hard time reestablishing the old luster in the future. Tom Sommerlatte of the consulting firm of Arthur D Little characterizes the problems of traditional electric manufacturers like Siemens as follows: "It is difficult for them to understand computers and they often put the wrong people in charge of dealing with these problems. These people frequently try to reinvent the wheel."

Take the components division for example which is running into problems trying to cover costs in marketing its integrated circuits, semi-conductors, passive components and tubes. In the microprocessor or memory field where as many as 100,000 circuits can be accommodated on minimal-sized chips, Siemens does not have much of a role to play on the world market. In terms of the standards set by U.S. companies such as Texas Instruments, Motorola or Intel or by Nippon Electrics of Japan, Siemens until now has been about one year behind—just enough to miss out on the lucrative starting phase when microchip prices were high. Not until 1982 did Siemens reach the 64-K chip standard set in 1979. By now, others are already working on 256-K microchips.

The situation is somewhat similar in the data technology field. Siemens computers are said not to work too well—despite the fact that the FRG government pumped DM 1 billion of tax funds into the firm for R & D. The results have been less than overwhelming. Even domestically, Siemens has only a 15.1 percent share of the market, running second behind IBM and worldwide, Siemens computers are of marginal importance at best.

A study prepared at the request of the FRG research and technology ministry by Arthur D Little and SRI International and recently published took a close look at the German computer industry and came up with rather deplorable findings. The German data industry, the study concluded, "has not secured a permanent place for itself in most cases of international competition, nor is that place secure in view of further changes in international competition."

In the specific case of Siemens, the experts voiced some additional fears. Since the future lies in combining data processing and communications technology, Siemens does have an "excellent starting position" in view of the fact that the firm has both divisions existing under one roof. "But thus far," the one year-old study found, "Siemens has been rather slow to move on these developments in the data processing and communications field."

Still, Siemens chief Kaske has begun to chart a new course. By 1 April 1984, he plans to have separated out communications end items and private networks from the communications technology division just recently established in



1977 and added them to the data technology division. There will then be a new data and communications technology division whose job it will be to tackle the budding office communications market.

The aim will be to break the cumbersome, centralized management apparatus tailored to headquarters in Munich of its traditional habits and attitudes based on decades of success in the electro-mechanical field and to motivate it to seek new goals. At present, at any rate, Siemens still is rather reticent about going after new technology or new markets. Dieter Dobmeier, an analyst with PM Portfolio Management of Munich views this as a philosophy that has stood Siemens in good stead thus far. "It is sufficient to be No 2 both in technology and on the market," he says.

But it is another matter whether this sort of attitude will carry the day at all times. Siemens, for instance, decided to put its money into the development of its own line of computers despite the fact that IBM had already achieved market superiority and the fact is that the Siemens computers are not compatible with those manufactured by IBM. Convinced of the fact that they would win a share of the market with their own system and keep customers from switching to the IBM equipment, the Siemens organization committed a marketing mistake which is being felt by other non-compatible computer technology manufacturers: customers tend to decide in favor of market leader-compatible equipment so as not to have to depend on one supplier alone. "By pursuing this policy, however, Siemens forfeited its chance to lure customers away from IBM," one marketing expert has said.

But the highest-performance computers now being offered by Siemens under the Siemens 7800 label are IBM-compatible—but they are being built by Siemens' Japanese partner Fujitsu.

It seems that the decision in favor of cooperating with the Japanese firm was something of an embarrassment for the Siemens management. A cryptic reference to it may be found in the company's activity report which merely says: "In addition to our 7500 systems, we also expanded production of high-performance large-scale computers." But this makes no mention of no less than three items of information—who built the computers and with which computers they are compatible and with which they are not compatible; namely Siemens' own. By 1985, Fujitsu is expected to have achieved compatibility with Siemens' 7500 and 7800 systems. Outside marketing experts still find it somewhat astounding that the two computer lines continue to be marketed by two separate sales organizations. It may thus happen that two different Siemens salesmen show up at a customer's casting mutual aspersions—on Siemens products.

A basic failing which makes life difficult for Siemens on quickly changing markets is the obvious communications gap separating the 30,000 working on R & D and the sales force. This certainly is one of the reasons why the road from basic research to salable end product is too long. Now, Kaske is about to tackle the problem at its root. Beginning this fall, researchers and salesmen are to attend joint seminars where they will be instructed by outside training personnel on how to understand each other better.



But a snag in innovation above all in the promising automation technology field is something the company can ill afford. In this field, rapid implementation of know-how is of the essence. By coming up with numerical controls for individual machinery, guidance systems for integrated production and complete industrial robots, Kaske hopes to achieve above-average growth rates. But former Siemens general manager Alfred Prommer believes that real success in the marketplace will depend on "the ability of the firm which is geared to large-scale projects and mass production to satisfy the great variety of demands of medium-sized industry."

In the international arena, too, Siemens is having a difficult time in the face of stiff competition. To be sure, Siemens is by now doing almost 60 percent of its business abroad and, as Hans-Gerd Neglein, Siemens sales chief, says: "Almost 95 percent of today's world electrical market worth DM 1,430 billion is located in foreign countries."

But in the biggest market in the world—in North America—Siemens did only 7 percent of its business in 1981-82—about the same as in Latin America but somewhat less than in Asia and Australia combined. "Given the size of the company, Siemens is decidedly underrepresented on the largest technology market in the world," said the U.S. magazine BUSINESS WEEK. But this may well be the fault of the specific Siemens organizational structure which is not known for flexibility and quick reaction to change. In October 1980, Siemens adopted the matrix organization principle which was then the latest thing in America. Under it, the local companies responsible for sales in foreign countries have been given equal status to the company divisions responsible for production from the R & D stage all the way to sales.

Siemens organization experts called it a "fruitful addition;" but the result has been a veritable planning avalanche as every officer responsible for production at headquarters must coordinate decisions with the field representatives. And there is another obstacle to successful export. All the divisions and headquarters departments have a seat on the board of directors but the foreign subsidiaries can only present their case to the board indirectly—through the head of sales.

Generally speaking, the huge 21-member Siemens board of directors has a difficult time of it setting strategic priorities and quickly instituting whatever corrections are necessary. Board membership is made up of 12 division and department heads and nine district sales chiefs. As members of the board, they must be able both to plead their own case as lobbyists and at the same time act as self-controllers in the interests of the company as a whole.

Rolf Overbeck, the head of the equally diversified Mannesmann concern and an adviser to the Siemens board, believes the board is simply "too big for meaningful decision-making." Overbeck does not think it is "wise to try to coordinate everything with everyone."

But an organizational structure such as Mannesmann's which leaves a lot of room to individual departments in the decision-making process seems not to be a topic of discussion at Siemens although there are precedents even in the Siemens empire for this type of independence. The Dr Ing Rudolf Hell Ltd specializing in reproduction and typesetting technology as well as Kraftwerk Union specializing in the construction of conventional and nuclear power plants are leaders in their respective fields, for example. And Hausgeraete Ltd, jointly operated with Bosch, is still making a profit in a field (electrical equipment for home use) where others have long since gone broke—and Osram is still making money on the production of light bulbs.

But Siemens continues to hold back in a field that has long been a mainstay in its production program: the telephone. While world-size concerns like IBM, jointly with a small and dynamic Canadian telephone manufacturer named Mitel, and huge AT&T, jointly with European-based partner Philips, or even the Paderborn firm of Nixdorf have all begun selling so-called digital extension telephone equipment which can be used not only to transmit speech but also data, images and graphics, Siemens has not as yet made any kind of impact in this field on the domestic market.

Digital technology has only been built into public exchanges by Siemens. And yet the experts do not doubt for a moment that Siemens would be capable of installing the same kind of technology for private use. But marketing experts have noted that Siemens is standing idly by while other suppliers are already entering the market which promises to bring them large growth rates in the years ahead. "It is dangerous for the market leader not to play the role of technological pacemaker," says Rolf-Dieter Leister, the former general manager of IBM Germany who now works as an independent industry consultant. "If he does not, others will take over. In this field, things change rather rapidly."

In many fields, the giant concern which is frequently mistaken for a state-owned enterprise by foreigners takes its cue from government subsidies and government orders—federal, regional or local. The research and technology ministry turned over DM 4.5 billion to Siemens during the past 11 years. In 1983, it will turn over DM 455 million more. The firm's biggest public sector customer is the German postal service whose annual outlay in orders to the economy as a whole amounts to about DM 15 billion. Official Siemens statistics say that public sector orders placed with the giant firm amount to an average of DM 3.6 billion. This still comes to 20 percent of all domestic orders and 10 percent of the turnover worldwide. And Siemens is active at all levels so as to keep getting these orders—and that not only refers to the fact that Siemens board member Hans Baur also has a seat on the board of the postal service in an "advisory capacity."

All told, Siemens has 487 employees who hold some sort of public political office. This includes 125 aldermen, 20 mayors and three CDU members of the Bundestag who are looking out for the interests of the firm as a whole.

Siemens' traditional role of supplier of the postal service has been challenged, however. IBM got the contract to install the videotext system for Germany. "No other firm," says Minister for Post and Telecommunications Christian Schwarz-Schilling, "was able to fill the order at the required price and required time under the conditions offered to us by IBM."

To be sure, IBM cannot keep to the schedule either but it now has its foot in the postal door and will no longer forgo the opportunity to do business with other telecommunications administrations in foreign countries and will also try to get a share of the postal market domestically—for instance in the matter of telephones. As for the minister, he is in a position to weaken Siemens' long-time position of main supplier considerably. Schwarz-Schilling does not hesitate to say in fact that the large German firms "placed a bit too much reliance on orders from the German postal service" in the past. "The German postal service," he adds even more drastically, "does not consider itself the development aid agency for German industry."

#### Kaske on Company Strategy

Duesseldorf WIRTSCHAFTSWOCHE in German 3 Jun 83 pp 66-68

[Interview with Siemens chairman of the board, Karlheinz Kaske by WIRTSCHAFTSWOCHE editors Karl-Heinz Bueschemann and Rainer Burkhardt: "We Will Keep Pace in Electronics"]

[Text] The Siemens concern has been able to deal with international competition in the past and will be able to do so in the future as well, its board chairman believes. In an interview with WIRTSCHAFTSWOCHE, Karlheinz Kaske explains how he proposes to chart Siemens' future and to continue managing the company with an eye to profits.

[Question] Dr Kaske, as head of the largest German electrical firm with some 112,000 employees, yours is a great responsibility. Is Siemens ready for the future?

[Answer] Yes. That would seem to be a matter of course.

[Question] The reason we ask is because Siemens seems to be marking time at the moment.

[Answer] Well, last year gross earnings rose by DM 5.5 billion. But there are some areas that are stagnating; that is true. But they are stagnating at the competition, too. Just think of the construction equipment industry. On the other hand, our production automation division, for instance, is continuing to grow at a double-digit rate. If we compare our operations with those of our competitors, we are not doing badly.

[Question] But why are you holding on to DM 11 billion in liquid assets instead of investing them?

[Answer] That question is not at all easy to answer. But let me put it this way. In the years past, we did not leave out a single opportunity for meaningful investment. What is more, we do not think we should invest the pension reserves—which amount to claims on us after all on the part of our employees—in risky ventures.

[Question] But that is only part of the huge liquid assets.

[Answer] It amounts to one-half. Based on the experiences of the past few years, however, I think we have a right to think this way.

[Question] Are you getting ready for bad times?

[Answer] No. But we do know that times are difficult and will not get any easier soon—particularly since we do 60 percent of our business abroad. My feeling is the economy will not really turn around before the end of 1982 or the start of 1983.

[Question] In the light of less growth in the use of energy, are you still looking for growth in conventional fields such as energy technology and installation technology?

[Answer] The term "conventional" conveys a wrong image. Energy technology, too, is characterized by large new areas of technology with great growth potential. During the past 5 years, our own energy technology and automation technology division has increased its business by 50 percent to DM 10 billion. What you have called conventional includes a DM 3 billion share of electronics alone.

[Question] But the future is in semi-conductors and in that field Siemens is behind the world leaders.

[Answer] Do you mean in terms of funds or in terms of technical capability?

[Question] We mean both.

[Answer] In technology we are not behind. We are the only European suppliers of 64-K chips, for example.

[Question] The only Europeans, yes. But others already have 256-K chips.

[Answer] One cannot tie everything to one particular sort of memory. Here in my hand, for instance, I have a network component which for telecommunications use among others is of top world quality. But we would not think of selling the item before we have used it in our own products. That, after all, constitutes our competitive edge.

[Question] Doesn't it bother you that this supply sector is still operating at a loss ?

[Answer] No. The components, too, must make money. Only if we are competitive can we make sure that we ourselves are not turning out components that are too expensive.

[Question] But there are experts who say that Siemens is one year behind in the development of semi-conductors. And since the chips usually get cheaper just a few months after they hit the market, Siemens always gets there when there is no money to be made any longer.

[Answer] That is correct in some areas. But then again there are areas where we are ahead by a year—in surface wave filters for instance and in other items.

[Question] In the semi-conductor field, Siemens is collaborating with the reputable American firm of Intel. A few months ago, IBM bought into that firm. Isn't there a danger that IBM, your arch rival, might steal a march on you in this important field ?

[Answer] On the contrary. The fact that IBM did buy into Intel proves that we have got the right partner. We could not ask for anything more than that Intel components are used by IBM and thus become the world standard simply because IBM used them.

[Question] But would it not also be possible for IBM to learn of Siemens strategic projects ahead of time by way of Intel ?

[Answer] It is a matter of survival for every maker of components to see to it that the know-how does not get transferred to someone else. That is the basis of the components business. Otherwise, the manufacturers could not survive.

[Question] When will you start making money on your components ?

[Answer] I cannot give you an exact date. Losses may be due to two things: either business is bad or too much money is spent on R & D.

[Question] But that goes for the competition, too and it is pretty damned good, isn't it ?

[Answer] Be silent about it. But there is no other manufacturer who has as many products on the market as we have.

[Question] Given as large a selection of products as Siemens has, is there any way of pushing sophisticated technologies at all ?



[Answer] That is exactly what we have done over the past 150 years.

[Question] Is that going to change now?

[Answer] No, why should it?

[Question] In the electronics field, developments are moving very fast.

[Answer] And we are keeping pace. Let me give you some practical examples. In medical technology, we are second worldwide behind General Electric in computer tomography. There are some who think our equipment is better. And as for our electronic telephone exchange system ESD, which was the subject of much criticism in the past, it is in operation in 15 countries by now and we are hoping to sell it to a good many more. If you produce a lot of different items, your bouquet is bound to contain some thistles sometimes.

[Question] As data technology and communications technology grow ever closer together, major cooperative ventures such as those between Philips and AT&T or IBM and Mitel of Canada are beginning to assume some importance. As a traditional supplier, aren't you afraid of tremendous competition?

[Answer] Of course. But for one thing, we would not have been in a position to keep AT&T and Philips or IBM and Mitel from collaborating with each other. And for another thing, if we had joined forces with AT&T for example, that would have done nothing for us because we have both the telephone exchange technology at our disposal and an international sales organization. We took note of that as a plain fact. We managed to deal with the competition all along and we will do so in the future.

[Question] What will your reaction be?

[Answer] We will certainly not react by being hypnotized like a rabbit by the AT&T and Philips snake. We have set ourselves the task of creating an integrated workplace at which employees will be able to make phone calls, to use the teletype, to process textual materials, to add information and to have access to data banks. For this reason, we will institute unified management on 1 April 1984 combining the data processing, private networks and communications end items divisions of our firm.

[Question] What about the data processing division? When will it get back in the black?

[Answer] I do not want to set a firm date on that either. Let me just say this: profits have improved substantially.

[Question] Siemens has been selling a lot of Fujitsu computers. Are you now turning into a sales organization for others?



[Answer] What we are buying makes up for only 10 percent of the business. In data processing, the fact is that one firm cannot possibly do everything. Except for IBM, no one can and even IBM has some items manufactured by others. Generally speaking, we consider ourselves a systems business which means that the major items are made right here and we will also be developing new items right here in the future.

[Question] There are those who resent the fact that Siemens received a DM 1 billion research subsidy for data processing from Bonn, merely to turn around and provide the Japanese with a sales organization.

[Answer] You would also have to add what we ourselves spent on development in this field—which was many times this amount. For another thing, IBM never tells how much of its R & D is paid for out of the military budget. If we spent, say, DM 250 million to DM 300 million, we could not develop all the items, if IBM, for example, had 10 times that amount at its disposal and one-third of that perhaps came from the government budget. We have to be selective.

[Question] But Siemens, too, spends quite a lot on R & D but very little of it seems to be epoch-making. At the stockholders' meeting you promised some improvements. What did you have in mind.

[Answer] We hope to do better with the DM 3 billion we spend on R & D every year. But the innovation cycles of products and systems are getting shorter all the time and that means that the rate of success achieved through R & D is being looked at more than it used to be and that we must approach R & D with the same management methods as the other company operations. I cannot simply say that production or administration have to be streamlined. I must be able to expect the same thing from the 30,000 people working in R & D.

[Question] What seems to be the trouble?

[Answer] Discussion and communication between sales and development must be improved and for another thing, the process leading to product maturity needs to be accelerated.

[Question] Isn't there something of a contradiction between the centralized organizational structure at Siemens and the need for flexibility?

[Answer] We do not have anything like centralized management. We have areas of operation which are in a position to act like independent companies.

[Question] Wouldn't it make more sense to operate Siemens like a holding company?

[Answer] I, for one, would not think so.

[Question] But some of it is run independently from the legal point of view like your EMI subsidiary or Osram. Can all the different divisions be operated according to some unified model, including the same salary structure ?

[Answer] Until now, I have had the impression that our employees felt they were being paid in accordance with their capabilities. If that were not the case, I do not see how we could have gotten so many and, for that matter, so many good people to work for us.

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## ICELAND

### BRIEFS

TELEPHONE SYSTEMS UNDER STRAIN--Some 530 applications for telephones in Reykjavik are on a waiting list. So are another 80 in the town of Hafnarjardur, a short distance to the south, apart from a certain number in Mosfellssveit, a fast-growing municipality just outside the capital. According to Hafsteinn Thorsteinsson, director of the Reykjavik telephone office, the city problem strictly involves access to lines from the aging downtown exchange. Its capacity will be boosted by 200 units this spring, but that admittedly is just a partial solution, he said. As everyone knows, the difficulties stem from a tight budget--though it is open to doubt whether a true justification exists for that state of affairs. Most residents of the older parts of Reykjavik are convinced that the old exchange has been a real goldmine for the Post and Telecommunications Administration. [Text] [Reykjavik MORGUNBLADID in English May 83 p 5]

CSO: 5500/2721

NORTH NORWAY TO RECEIVE UK PROGRAMS FROM OTS SATELLITE

Oslo AFTENPOSTEN in Norwegian 4 Jun 83 p 19

/Article by Ingrid Furseth/

/Text/ It is expected that in the course of the summer North Norway will also be able to receive a more varied TV offering. The private firm Kanal Nord A/S completed the erection of the antenna which will put Bodo in contact with the British OTS satellite. It is anticipated that before the end of June parliament will have given its consent to a cable concession here in the North. Then in the course of a few days the cables can be laid and the first blocks of houses connected. Tromso, Harstad and Narvik are standing in line, but first formal approval must be on hand.

Kanal Nord A/S was established in December 1981. The goal has been to work for developing TV offering in northern Norway, where for the time being one can only get Norway. Kanal Nord has also reached an agreement on Swedish copyrights and may try to get Swedish TV in northern Norway.

The need for a wider TV offering is great. A market investigation last year showed that 60 percent of the population desires a satellite connection. The laying of cables also opens the possibility for establishing local TV stations. The same investigation shows that the interest of the population for local TV is greater than for satellite transmissions. Local cable TV committees have been formed in Bodo, Tromso, Harstad and Narvik.

"After the last debate on the media, we are anticipating a clear yes to further cable TV expansion in northern Norway," Geir Ovrevik informs AFTENPOSTEN. He is the managing director and vice president of Kanal Nord and has been working with the project since its start in 1981.

After experimental technical transmissions with antennas from February up until a week ago, Ovrevik is well satisfied. He believes that Kanal Nord has attained an important goal.

"The antennas were put up at Lake Bodo camping site. The tests showed very good results without technical problems and with a surprisingly good quality picture," Ovrevik says.

Now antennas stand securely in place on municipal land in the Ronvik fjell and are awaiting parliament's yes to a 3 year trial operation. Recently an agreement has been reached with the national Telecommunications Corp Kanal Nord and Telecommunications Corp want to negotiate a firm agreement on the expansion of cable TV in Bodo on the basis of experiences from 1983 as a trial year.

The construction of cable TV in northern Norway will mean more than an expanded TV offering. It will also be able to give that part of the country a number of new jobs.

"When can local transmissions be started here in the North?"

"We must first find an economic basis," Geir Ovrevik says.

6893

CSO: 5500/2719

## TELECOMMUNICATIONS PANEL URGES NATIONWIDE CABLE PROJECT

Oslo AFTENPOSTEN in Norwegian 16 Jun 83 p 17

[Article by Knut Lovstuhagen: "New Report from Telecommunications Administration: Cabling of Norway Important Task"]

[Text] The cabling of Norway in the form of a national integrated telematic network is an important social task which should be accomplished as soon as possible. Such a network would be able to transmit speech, text, data and live pictures at the same time. Of course it will be a long time before a nationwide fully developed telematic network will be finished, but a shortcut could be to coordinate the expansion of the public telenetwork and cable network for television transmission. This was proposed by the so-called Telecommunications Committee in its partial report number two, which was recently released.

The committee, with Oslo's Commissioner of Finance Bernt H. Lund as chairman, has worked with the subject for nearly one and a half years, and the document, among other things, deals with the strategy for introduction of new teleservices with an assessment of the monopoly situation, purchasing and industrial policies. As an overriding point of departure the committee believes that it is important to give priority to user interests and also the need of business for the best possible telecommunications. "Good and reasonable telecommunications services can be a valuable contribution to the development of productivity and the competitive ability of Norwegian business," it was emphasized. At the same time it was pointed out that Norway is too small a country to be able to operate several competitive public television networks. One public network can take of the most important community interests which are tied to geographic service expansion, similar offerings and uniform charges nationwide.

About the development of the telematic network, the committee said that it is fundamental that it must have public control, based on a dominant national



plan developed by both the Telecommunications Administration and private firms. The Telecommunications Administration must work out the proposal for this plan, which will coordinate the parallel development of the cable network for television transmission, and the public service integrated network.

The Telecommunications Committee said that the Telecommunications Administration will offer its services in competition with private suppliers to an increasing degree. For example, that applies to user equipment, which the committee believes should no longer be provided by a monopoly. Open competition on the equipment side will contribute to creating a market offering marked by the users' needs and the suppliers' competitive ability, it says. The Telecommunications Administration should participate in the competition on the equipment side, provided that the competitive activity is separate from other activities of the state. The arrangement in which the Telecommunications Administration approves all equipment which is connected to the public telenetwork should be turned over to a detached authority, something like NEMKO [Norwegian Board for Testing and Approval of Electrical Equipment] according to a majority of the committee.

In the report it was determined that future telephone equipment--because of the melding of teletechnology and data technology--will be advanced user terminals with a number of different special functions in line with other terminal equipment on the market. The committee majority therefore believes that the Telecommunications Administration's telephone monopoly will be gradually liquidated. Establishment of an agency for approval of equipments will ensure that equipments on the market from private suppliers will satisfy the necessary quality requirements, according to the majority.

It was further recommended that the Telecommunications Administration surrender its monopoly on digital centrals, but can participate in competition with private suppliers on the internal operating market. As for the household market, the state should take new products into its portfolio if business considerations call for it.

Program merchandise should also be a competitive area where the Telecommunications Administration offers program packages to the commercial and household markets, in open competition with private suppliers.

In its first partial report, released at the end of 1981 and which dealt with the situation and tasks of the Telecommunications Administration in the 1980's, the Telecommunications Committee recommended an early investigation of the future organization of the Telecommunications Administration. In the current report the committee says that the organization of the Swedish Telecommunications Administration appears to be an interesting model for Norway. "Its most important property seems to be the possibilities for businesslike and organizational dynamics, something which must also be included in a Norwegian model," says the report, and concern for a model seems to be appropriate.

It is of considerable importance for the large users' competitive ability that they get their needs for teleservices covered, said the committee. In cases where the user can expand the network faster than the Telecommunications Administration can, the expansion should continue under the direction of the state, but financed by the user, and eventually performed by outside firms or by the user himself. Such a network could later be integrated into the public network. Furthermore they recommend that the Telecommunications Administration become more actively engaged in development of the cable network for transmission of television, eventually in cooperation with private firms.

In the section on the policy on charges for new services the committee alleges that charges are often established so that in the beginning they do not cover the costs of new offerings. In the introductory phase, therefore, new services will be subsidized by charges for existing services. "In order to attain the best possible real competition," it says in the report, "it is necessary that the services which the Telecommunications Administration delivers in competition with private firms not be subsidized by tele-services which are a part of the Telecommunications Administration's monopoly."

The Telecommunications Committee further recommends that the Telecommunications Administration use as a base unified charges for the entire country for services for which the costs do not depend on distance. Where distances make a significant difference, the charges should be made dependent on distances.

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CSH: 5500/2727

NORWAY

MORE DETAILS REPORTED ON RECOMMENDATION FOR CABLE NETWORK

Oslo AFTENPOSTEN in Norwegian 18 Jun 83 p 8

[Article by Thorleif Andreassen: "Revolutionary Cable System Planned: Text, Speech and Pictures by Telephone Before the Year 2000"]

[Text] The country will be cabled. The people will be connected together! In all its simplicity, this is the conclusion of the comprehensive recommendation presented to Minister of Transport and Communications Johan J. Jakobsen yesterday by the government-appointed Telecommunications Committee. Briefly, the committee recommended the following: A nationwide telenetwork should be built as quickly as possible which can transmit speech, text, data and live pictures simultaneously.

This advanced system is called telematic, which is a combination of tele and data technology. Together with technical user equipment such as, for example, advanced telephone apparatus and text screens, the telematic network will give both businesses and households a universal information tool. And that tool can process and transmit speech, text, data and living pictures in two-way communications between subscribers.

These events are not in the distant future. The committee hopes that the country, with the help of millions of kroner, will be cabled and the people connected in before the year 2000. "Exciting," said the chairman of the Telecommunications Committee, Bernt H. Lund, speaking of the perspectives opened by telecommunications developments. "The committee has had the privilege, at state expense, to look into the future. It has been very interesting," said Bernt H. Lund, who especially emphasizes how interesting telematic is for Norwegian business.

Leafing through the comprehensive report, one reads about great future possibilities. Briefly outlined, some of the many future possibilities are: Electric mail sent by telenetwork. Telephone meetings where people sit face to face, each in his own part of the country. Payment arrangements through one's own terminal at home, business or office will be timesaving. Electronic accounts will make business billings and payments more efficient.

The possibilities seem overwhelming. But the demand will, naturally, depend on the price level and the public judgment of the usefulness and entertainment value of the services.

Communication and calling up information will take place both over the telephone network and the cable network for TV transmission. And what does that mean? A large number of possibilities, as for example that home employment places will be established with contact with employers in another place. That education opportunities can be expanded, and new methods used in adult education. In the health services, remote diagnoses can be used and instructions can be given for certain types of treatment--eventually by local health personnel.

The committee has given the Telecommunications Administration a very prominent place in the development of telematic. How central that monopoly will be in relation to private companies, the Storting will decide.

9287

CSO: 5500/2727

NORWAY

GOVERNMENT TO DENY STATE FUNDS FOR LOCAL RADIO OR TELEVISION

Oslo AFTENPOSTEN in Norwegian 14 Jun 83 p 7

[Article by Ragnvald Naero: "Test Period for Local Radio/TV Lengthened: No State Support for Local Radio"]

[Text] The test period for local radio and TV runs out on 1 July, but most probably all the companies with concessions will be invited to continue operations. An eventual change in the broadcasting law this fall will furthermore open opportunities for expanded activity, according to Department Head Johs. Aanderaa. In the Department of Culture they have no plans to move ahead with state support to help the difficult economy of local radio stations. In order to finance its activities, Radio West in Stavanger will put out a free newspaper in the fall.

"Unless special circumstances arise to require a change, all the companies operating local radio and TV and receiving signals from the OTS [Orbital Test Satellite] can continue operation after the expiration of the test period on 1 July," said Department Head Aanderaa.

In the first place the current holders of concessions will get new concessions later on in the fall. This relates to the fact that the department is working with a recommendation for changing the broadcasting law. This recommendation, which will be presented as a bill in the lower house, will create an opening for more local radio and TV stations. No new applications will be granted before this change in the law has passed the Storting.

"But exceptions can be made for companies in north Norway. In the Storting report on new broadcasting media on 10 May of this year, it was said that this part of the land in one way or another must be included as quickly as possible," First Counsellor Oddbjorn Loberg in the Department of Culture told NORSK TELEGRAMBYRA. As soon as the Storting has dealt with the change in the law, the concessions for test operation until the end of the year will be dealt with.

In a statement from the Norwegian Press Association it was claimed that the Norwegian press must be put in the same position with all other interested parties when it comes to access to participation in the new media. Andersen said that the department is now trying to establish terms so that newspapers can be included in the operation of local radio and TV. This work is taking place against the background of the media debate in the starting, where a majority maintains that newspapers under certain conditions must have reason to participate to a greater extent in the new media.

Byronne

Early in the spring several local radio stations said that they were in danger of having to discontinue operations on 1 July because of the poor economy. AFTENPOSTEN has learned that in the Department of Culture there are no plans being worked out which can ensure state contributions to local radio stations. It is also unclear if the municipalities or the counties will provide public support.

Radio West in Stavanger is, however, preparing a new venture. In the fall the local radio station will publish a monthly free paper to finance its activities. According to NORSE TELEGRAMBYRA the edition will be between 20,000 and 30,000 copies which will be distributed to households. It is hoped that advertising revenue will provide a surplus for the project. "I understand the opposition to free advertisements, but as long as we are not allowed to send advertisements on the air, we must find other ways to finance the operation," said the manager for Radio West, Geir I. Mykletun.

#### (12) Ambassador Criticizes Satellite TV Concessions

Civil Ombudsman Audvar Os, in a letter to the Department of Culture, criticized the practice which the department has followed of giving out concessions for test operation with the reception of signals from the OTS.

The Oslo firm Antenne Pjensynsantennen A/S has complained to the Civil Ombudsman because the application from the firm for retransmission of TV signals from OTS was refused. Os maintained to NORSE TELEGRAMBYRA that this clearly appears unfair, since two competitors, Jance Electronic and Odd Eken received concessions. He claimed that if some get concessions and some not, that is clearly discrimination for which there is no foundation in the law.

The complaint of the Civil Ombudsman is now being dealt with in the legal section of the Ministry of Justice.

According to DANRADIO, the OTS company in London is for that matter on the edge of bankruptcy. The result of the last accounting year shows a massive deficit of about 12 million kroner, with a turnover of only 4.5 million



kroner. The controversial Australian newspaper king Rupert Murdoch may, however, come to the rescue of the TV company. He has offered to invest about 55 million kroner in the bankrupt Satellite Television, which today broadcasts to Norway, Finland and Switzerland over the OTS.

9287

CSO: 5500/2727

NORWAY

PARLIAMENT TO DECIDE SOON ON BIG PHONE EXCHANGE CONTRACT

Oslo AFTENPOSTEN in Norwegian 16 Jun 83 p 4

[Article by Knut Lovstuhagen: "STK Won Tug of War Over Telephone Centrals"]

[Text] The expert technical group at the Telecommunications Administration which has evaluated the bids for public digital telephone centrals recommends that STK (Standard Telefon & Kabelfabrikk) with its ITT System 12 should get the contract of between 600 and 700 million kroner. AFTENPOSTEN has learned that this is the recommendation which will be dealt with at the directors meeting in the Telecommunications Administration on 27 June and which probably will be agreed to by the directors.

After thorough technical-economic evaluation of the bids received, the group of experts settled on STK as the firm which has the best solution for the further development of the telenet here in this country. Competitors were Elektrisk Bureau with central equipment developed by L. M. Ericsson in Sweden, and Sonnicco with equipment from the French telecommunications giant CIT-Alcatel.

The issue of the telephone centrals will come to the Storting for disposition during the fall session. The expected outcome is that the Storting will go for a cooperation between STK and Elektrisk Bureau so that EB will also participate in the production of digital central equipment for the Telecommunications Administration.

9287

CSO: 5500/2727

SOCIALIST ORGAN WANTS MORE PROTECTION FOR NATIVE INDUSTRY

Oslo ARBEIDERBLADET in Norwegian 25 May 83 p 6

/Article by Gunnar A. Johansen: "Special Norwegian Telecommunications Company Policy"/

/Text/ Norway's telecommunications' policies are in the process of becoming somewhat unusual, seen in an international light. While other countries are doing their utmost to preserve and develop their own telecommunications industry, Norway is going in an exactly opposite direction. The nonsocialist Storting majority saw to this yesterday when it subscribed to the decision for bids from international companies on the new digital telephone stations.

Even the most hardened free-trade souls put a limit in regard to national telecommunications industries. They push aside all fine liberal trade principles and form a ring around their own industrial development in this area.

But not so in Norway. The entire telecommunications industry in Norway has warned against the policies of the government and now also of the Storting majority. The employees have raised strong accusations of a gamble with thousands of jobs.

Monopoly

The struggle in regard to the contract for the new telephone stations involves not only which firm will get it but also actually who will take care of the development and delivery of telecommunications equipment for decades into the future. The winner will be long down the road to getting a monopoly in this field in Norway.

Two Norwegian firms are in the struggle for the tele contract--Elektrisk Bureau and Standard Telefon og Kabelfabrik. In international terms they are small, limited industrial sectors. But the two of them have important interests to preserve in the Norwegian context.

Only these two firms can pursue and expand Norwegian technology in this field. If some of this segment disappears, important pieces of Norwegian industrial development will also disappear at the same time.

## A Matter of Principle

The Storting debate yesterday involved among other things a decision on principle--that foreign bids will be obtained, not who will get the contract. Stortinget will come back to that later. Much points to a majority in parliament for letting Elektrisk Bureau and STK share in the contract. But the decision on principle can easily lead to the situation being sewed up. A clear difference in bids, favorable to the foreign firms, can make it difficult to get around the problem. It was probably something like that which chairman Karl Ingebrigtsen (Labor) had in mind when he criticized the government at Stortinget yesterday as follows:

"The government's conduct in this question deserves strong criticism. The question should have been submitted to Stortinget in advance since it involves a big change from previous practice."

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